

**OFFSHORE OUTSOURCING AND
AMERICA'S COMPETITIVE EDGE:
LOSING OUT IN THE HIGH
TECHNOLOGY R&D AND SERVICES
SECTORS**



**OFFICE OF SENATOR
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I am releasing this white paper in hopes that it will stimulate a deeper review of the long term implications for our policy responses and change the terms of the debate on the offshore outsourcing issue. The issues raised in this report go well beyond the current debate and focus on the next wave of this challenge, which potentially could affect high end R&D research jobs, not just manufacturing and call center jobs.

Seen in this light, the challenge is more fundamental, and requires that we fundamentally rethink America's competitiveness strategy over the long-term. This report concludes that what we have thought was our nation's ultimate competitive advantage – our high end R&D prowess – may be challenged.

If this is true – and for now the prognosis is mixed – then our search for effective policy responses has barely begun. This report attempts to take this debate to an entirely new level. It's not alarmist; its analysis is calm and measured. But the implications of this analysis are profound: it reaches for America's competitive advantage in an era when the entire world is competing based on free enterprise economics and open trade.

That is a competition on our terms. It's a competition we have said we wanted and now we have it. The implications of it for us have only barely begun to be sensed. This report aims at an understanding of the global and tidal implications of this new competition. This is a competition that will dominate the 21st Century.

We have seen this global outsourcing phenomena in the manufacturing sector where 2.7 million jobs have disappeared since 2000. Some of these job losses come from productivity gains – American companies are able to produce more with fewer employees. But much of it is believed to come from American companies shifting jobs to offshore locations.

Now the services sector is also starting to be hit by offshore outsourcing. Customer call centers and data entry facilities are increasingly being relocated to where capable labor can be found at lower wage levels. However, offshoring is not limited to these entry level service jobs. Higher skilled professional jobs ranging from engineering, computer chip design, to nanotechnology research are also starting to move overseas. Let me emphasize that we don't have good data on our current offshore outsourcing problem – business and government are not collecting it. We have only general information; we must now track the real data to understand what we are facing. My point, however, is that we are now seeing signals that our future problem may be significant because it reaches into our innovation capacity.

The fact is, unknown to most workers, our economy and the global economy as a whole is undergoing fundamental structural changes. Most American companies

engaged in offshoring think they are doing what they need to do to survive. While American companies may be improving their individual competitiveness in the short term, they may be collectively undermining America's and their own competitiveness for the long haul. Bit by bit, we're not just moving good jobs overseas, but we may be transporting big blocks of our innovation infrastructure, the talent and technology that fueled our record setting growth and prosperity in the 1990's.

There has been little informed discussion of the fundamental long term challenge of offshoring high end engineering, research and development jobs. Nor have many acknowledged how our nation's irresponsible fiscal policy has undermined U.S. competitiveness. The debate needs to focus on our own culpability and not simply decry other countries and their industries for rising to challenge us in the global economy. We can not afford to idly stand by as we face the loss of parts of our innovation infrastructure – labor, capital, knowledge, technology, and plants – and with it the engine of job creation. Nor can we afford to build walls around our borders.

To save American jobs, we need to rise to the competition and grow through innovation. There are no shortcuts, no silver bullets to competitiveness. But there are big steps our government can take now to enable American businesses to better compete and therefore keep jobs here at home. We have faced similar dislocating economic transitions before and grown our economy through them. We can and will do it again.

I close by thanking my able staff for their hard work in researching and preparing this White Paper.



U.S. Senator Joseph I. Lieberman

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EXECUTIVE SUMMARY

The United States has enjoyed unparalleled technological leadership for decades. Our capacity for innovation has continued to create jobs and raise living standards despite the ongoing migration of manufacturing to foreign nations in the past decade. However, a new, potentially more dangerous migration is upon us. The rising trend of outsourcing high technology manufacturing and high-end services jobs overseas presents a new and fundamentally different phenomenon. This new trend is far bigger and more complicated than the current debate suggests. Key components of our innovation infrastructure such as knowledge and capital have become highly mobile. If our engineering, design, and research and development (R&D) capabilities continue to follow the manufacturing and services facilities going abroad, our competitiveness will be weakened, putting our economic prosperity and national security at risk.

The offshoring of facilities, labor, capital, technology, and information not only hurts our workers, but also threatens the backbone of our knowledge-based economy. Emerging nations such as China and India have realized that technological leadership leads to economic prosperity. Their governments are committed to attracting business investments, technology transfer, and knowledge inflow into their countries through industrial policies, subsidies, and business incentives. The offshoring trend will most likely accelerate and spread as more U.S. companies figure out how to efficiently exploit these incentives, not to mention the large pools of educated low cost foreign labor. Enabled by high speed telecommunication connections, the recent migration of labor-intensive services jobs was primarily motivated by the potential of up to a 90% savings in labor costs.

The innovation structure that served us well in the face of less formidable competition is no longer sufficient in the face of this new fierce global competition. Key components of our innovation infrastructure are deteriorating as federal funding of R&D, the number of science and technology graduates, and business investments in the U.S. continue to decline. Our innovation capacity is further undermined by the massive budget deficits which threaten future federal investments in R&D and education, and increase our exposure to currency manipulation by foreign lenders. This subsequently leads to the loss of manufacturing and service jobs. Our competitiveness is further comprised by international trade agreements that are not adequately enforced when our trade partners fail to live up to their commitments.

We can no longer afford to continue in this Administration's path of denial and inaction. There are no assurances that we will remain a global leader in innovation, and maintain our jobs, our standard of living, and our global market share. If our current employment and education trends are an indication of where we are heading, we will eventually fall behind those countries that are aggressively investing in their people, education, R&D, and businesses.

It is time to begin a national debate on restoring U.S. competitiveness so that we can remain at the cutting edge of innovation. This report presents a five part strategy to

addresses offshoring, including developing policies that encourage greater investments in federal and industrial R&D, K-16 education and lifelong training, commercialization and businesses, and technological infrastructures such as broadband. Concurrently, it is essential that we assist our displaced workforce by extending compensation benefits and providing rapid retraining programs. We need to confront emerging nations that are aspiring to lead by fighting for greater access to overseas markets for goods and services, enforcing fair trade practices, and vigorously defending our intellectual property rights. Lastly, we must address our nation's irresponsible fiscal policy which makes us dependent on foreign purchases of U.S. securities and facilitates currency manipulation, further exacerbating the loss of our manufacturing and services jobs. By taking these proactive steps, we can create an environment that enables Americans to invent and develop the future waves of innovations that will keep quality jobs in U.S. shores.

(This is the fourth major white paper in a recent series on U.S. economic growth Senator Lieberman has released. Prior related papers on broadband deployment, on loss of our semiconductor sector, and on manufacturing policy can be found posted on the Senator's website, <http://lieberman.senate.gov>.)

Introduction

Since November 2000, close to three million Americans have lost their jobs. While higher productivity and a weakened economy have largely been responsible for this loss, a growing trend of jobs moving overseas has further exacerbated our nation's jobless economic recovery. Once limited to manufacturing, the globalization of information technology (IT) has given rise to a new offshoring phenomenon. Forced to lower costs in the face of fierce global competition, a growing number of U.S. firms are now moving services work abroad. This trend threatens Americans working in a wide array of industries that use IT in their business functions, ranging from data entry to aeronautical design. Many of these are the high skill jobs that Americans assumed would always remain in the United States. This shift from manufacturing to high-end services and R&D jobs going overseas is critical and presents a potential threat to U.S. long-term competitiveness and to our national security. The degradation of our innovation infrastructure has received limited attention in the multitude of articles, reports and legislative proposals on offshoring. This report aims to address this new and fundamentally different phenomenon of losing our R&D, engineering, and high-end services and to propose a comprehensive strategy to address the offshoring challenge.

Although offshoring benefits U.S. consumers and shareholders through low cost services and products, we must assess the long-term economic and national security implications of relocating high-tech U.S. plants and skills overseas. If we continue to offshore key components of our innovation infrastructure - labor, capital, knowledge, facilities, and technology - to the point where we lose our competitive advantage, where will our workforce go next? The answer to these and other difficult questions in the offshoring debate is not easy. We must fundamentally rethink our long-term strategies regarding competitiveness, innovation and R&D, trade policy and enforcement, as well as education and making essential investments in our "human" capital. But we cannot begin to develop solutions until we have a better understanding of the scope of the offshoring phenomenon.

The terminology used to describe the exporting of jobs varies widely. Outsourcing is the generic term used when companies contract out certain business functions to an external supplier, eliminating the need to maintain an internal staff necessary to perform that function. Offshore outsourcing is the contracting of these business functions to companies in lower-cost, primarily developing nations. Offshoring is used to describe multinational corporations relocating work from their domestic sites to foreign locations. Lastly, on-site offshoring occurs when foreign companies bring low-cost labor using guest worker visas such as H-1B and L1 to perform work in the U.S.¹

Although statistical data on the number and nature of jobs lost is not readily available, there is rising consensus among government and business leaders that this trend poses a threat to the U.S. economy. U.S. leadership in innovation, which drives the economy, will erode if design and R&D continues to follow the manufacturing and services jobs that are gradually shifting overseas. Intel Chairman Andy Grove recently

¹ Ron Hira, "Implications of Offshore Outsourcing," January 23, 2004.

warned that U.S. leadership in software and other key technology sectors is in jeopardy, threatening the country’s economic recovery and growth.² In a recent report, the President’s Council of Advisors on Science and Technology voiced similar concerns that “while not in imminent jeopardy, a continuation of current trends could result in a breakdown in the web of innovation ecosystems that drive the successful U.S. innovation system.”³

In addition to analyzing the scope of offshoring in the IT and high-end services sector, this report will present a positive, aggressive, and comprehensive strategy to tackle offshoring. A successful strategy will address many of the factors which spur offshoring, including: 1) improved safety nets to assist affected workers, 2) a competitiveness agenda which encourages greater innovation and technology development; 3) ensuring effective trade policies and strong trade enforcement; 4) investing in workforce education and training; and 5) restoring fiscal sanity and reducing our deficits.

Employment Data for Services and High Technology Industries

Following the recession of 2000, the United States has experienced a record low employment growth rate compared to previous post-recessionary periods (Figure 1). This atypical employment pattern suggests a structural change, a permanent redistribution of workers to new industries and a decline in rehires. About 79% of employers are permanently eliminating jobs for a variety of reasons, including a permanent slump in demand, improved productivity, new technologies, reorganization, and domestic or international outsourcing.⁴ This trend is significantly different from the 51% structural change that occurred in the 1980s. A recent study predicts that fewer than 40% of employees whose jobs are moved offshore through 2005 will be redeployed by their current employers.⁵

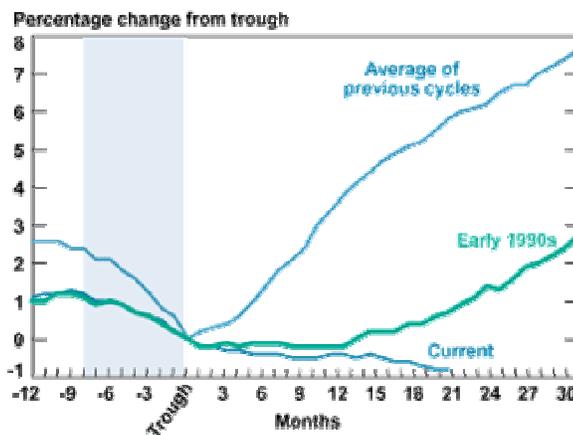


Figure 1. Payroll job growth during post-recession recoveries (Innovation Metrics, Egils Milbergs)

² “Intel Chairman Says US is Losing Edge,” Washington Post, October 10, 2003.

³ Sustaining the Nation’s Innovation Ecosystems, PCAST, January 2004.

⁴ Innovation Metrics, Egils Milbergs, IBM Corporation, January 2004.

⁵ Diane Morello, “U.S. Offshore Outsourcing: Structural Changes, Big Impact”, Gartner Research Note Commentary, July 15, 2003.

Since 2000, we have lost 2.7 million manufacturing jobs, of which over 500,000 were in high tech industries characterized by large R&D investment-to-sales ratios. Most of these were in IT industries, such as telecommunications, electronics, and semiconductor component production. Among the high tech manufacturing industries listed in Table 1, 28% of the jobs have disappeared since 2000. Many of these jobs went to foreign countries aggressively pursuing technological leadership with their industrial policies, subsidies, and incentives.

High Tech Manufacturing Industries	Dec. 2000 Employment (thousands)	Dec. 2003 Employment (thousands)	Employment Change (thousands)	% Employment Change Since Dec. 2000
Computer&Peripheral Equipment	303.5	218	-85.5	-28.2%
Communications Equipment	256.9	153.5	-103.4	-40.2%
Semiconductors& Electronic Components	712.3	452	-260.3	-36.5%
Electronic Instruments	479.8	425.8	-54	-11.3%
Total High Tech Manufacturing	1752.5	1249.3	-503.2	-28.7%

Table 1. Employment in high technology manufacturing industries (Seasonally not adjusted BLS December data)

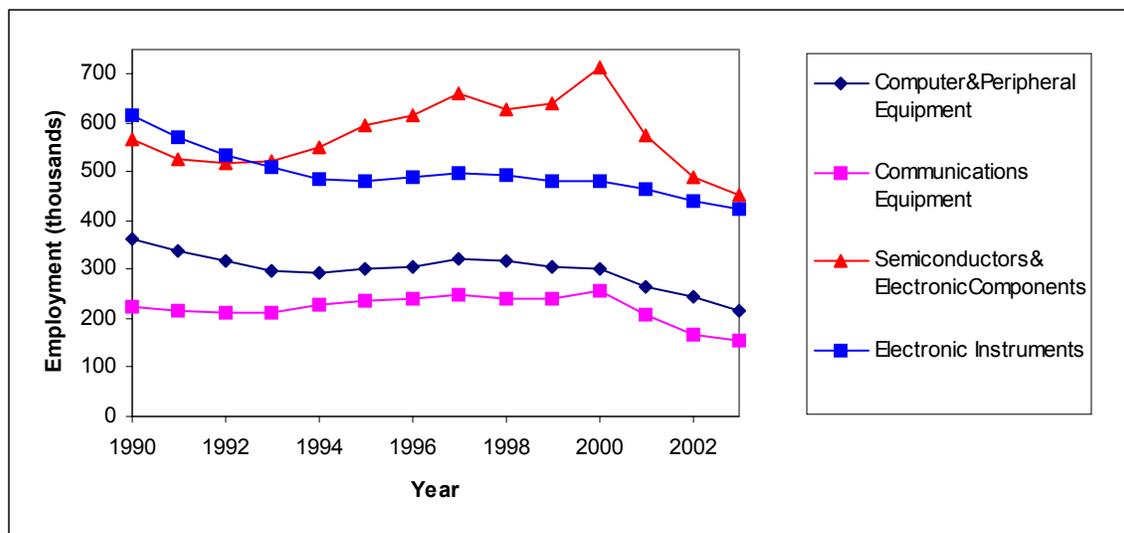


Figure 2. Employment in various high technology manufacturing industries (Seasonally not adjusted BLS December data)

Now we are witnessing the loss of services jobs, especially in the professional, technical, and business services industries. Between 2000 and 2003, the professional, technical, and business services sector had the second highest long-term unemployment, following the manufacturing sector. The offshoring of white-collar jobs in services may help explain the unusually high long-term unemployment in these industries. The number of people seeking work for longer than six months in this sector has risen faster than in any other sector, at an astounding rate of 339.2% between 2000 and 2003.⁶

⁶ EPI Issue Brief, “Educated, Experienced, and Out of Work,” March 4, 2004.

The loss of jobs is not limited to low paying industries, but has affected high tech industries that require post secondary education and training (Figure 3). Since December 2000, 632,000 jobs have disappeared in high technology services industries (Table 2). In 48 of the 50 states, jobs in higher paying industries have been replaced with jobs in lower paying industries since the recession ended in November 2001.⁷ Employment in IT services jobs dropped 9.2% in just one year between 2001-2002. Representing 19.1% of the long-term unemployed, college graduates are having a disproportionately difficult time finding work. Between 2000 and 2003, the number of unemployed college graduates grew at a rate of 299.4% compared to 156.1% for workers with high school degree or less.⁸

High Tech Service Industries	Dec. 2000 Employment (thousands)	Dec. 2003 Employment (thousands)	Employment Change (thousands)	% Employment Change Since December 2000
ISPs, Search Portals & Data Processing	516.1	403.4	-112.7	-21.8%
Telecommunications	1323.4	1060	-263.4	-19.9%
Computer Systems Design & Related Services	1319.3	1109.8	-209.5	-15.9%
Software Publishers	271.5	236.3	-35.2	-13.0%
Architectural Services	187	178.2	-8.8	-4.7%
Engineering & Drafting Services	808.6	782.1	-26.5	-3.3%
R&D Services	524.8	548.9	24.1	4.6%
Total High Tech Services	4950.7	4318.7	-632	-12.8%

Table 2. Employment in high tech services industries (Seasonally not adjusted BLS December data).

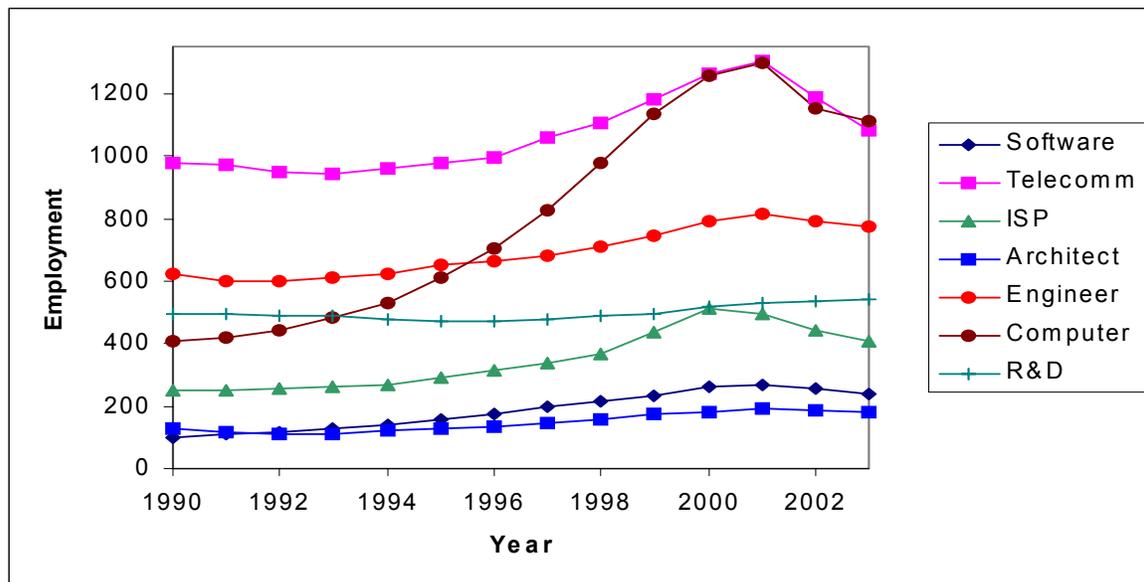


Figure 3. Employment in various high technology services industries (Seasonally not adjusted BLS December data)

⁷ EPI Economic Snapshots, January 21, 2004.

⁸ EPI Issue Brief, "Educated, Experienced, and Out of Work," March 4, 2004.

According to a study conducted by the University of California Berkeley, 14 million U.S. services jobs, representing 11% of all U.S. occupations, are at risk of being exported.⁹ This is a compilation of all the services jobs in the United States that are threatened by offshoring. Given the potential economic and national security impact of offshoring knowledge-based jobs, we must begin to address how to position U.S. policies that deal with this fundamental challenge.

Current Trends in Offshoring of IT and IT Enabled Services

As suggested above, a new wave of globalization is sweeping across the United States, moving jobs abroad in services industries that rely heavily on the use of information technology. The loss of jobs is affecting not only the IT sector, but also a wide array of industries that utilize IT in their business functions and operations. A number of research analysts have released speculative projections on the magnitude of offshoring. According to an oft-cited Forrester report, over the next 15 years, 3.3 million U.S. services jobs and \$136 billion in wages will move offshore.¹⁰ Of this total, 473,000 will be IT-related jobs, representing 8% of all current IT jobs in the country. The greatest outsourcing levels are expected in software development and customer service and call centers.¹¹ Gartner estimates that 5% of all IT jobs could move abroad by the end of 2004.¹² Other research suggests that the number of U.S. services jobs lost to offshoring will accelerate at a rate of 30 to 40 percent annually during the next 5 years.¹³

The Department of Commerce “Digital Economy 2003” defines IT industries to include four major segments: 1) computer hardware; 2) communications equipment; 3) communications services; and 4) software and computer services. IT-producing industries accounted for about 8% of U.S. Gross Domestic Product in 2003¹⁴ and for roughly 28% of real economic growth between 1996-2000.¹⁵ In 2001, total IT-producing industries’ GDP was \$828.9 billion, with projections of \$871.9 billion in 2003.¹⁶ These numbers demonstrate the critical importance of the IT industry to the United States, adding urgency to the offshoring debate.

The offshoring trend in services began in the late 1990’s when industry had to go abroad to meet the IT labor shortage in the United States caused by the excessive Year 2000 workload and the boom of the dot-com economy. Encouraged by large cost savings and enabled by advances in IT, corporations continued to offshore labor intensive IT services such as legacy software maintenance and low level coding. Now sophisticated IT tasks like web applications development, XML, software design, architecture, and management are going offshore. Moreover, a growing number of U.S. corporations are moving their IT enabled business services, also known as Business

⁹ The New Wave of Outsourcing, Fisher Center Research Reports, University of California, 2003.

¹⁰ Forrester Report, 3.3 Million U.S. Jobs To Go Offshore, November 11, 2002.

¹¹ “Digital Economy 2003 at p. 33, citing Forrester Report.

¹² CIO, U.S. Offshore Outsourcing Leads to Structural Changes, Gartner.

¹³ The McKinsey Quarterly, Who Wins in Offshoring, Vivek Agrawal and Diana Farrell.

¹⁴ “Digital Economy 2003”, U.S. DOC, Economic and Statistics Administration, December 16, 2003 at p. 9

¹⁵ “U.S. IT Industry: A Brief Overview”, ITAA News and Publications, 2003

¹⁶ “Digital Economy 2003”

Process Outsourcing (BPO), abroad. Banks, insurance firms, mortgage lenders, credit card companies, airlines, and utility providers are among organizations that offshore outsource business processes such as data entry, low level processing, customer call centers, telemarketing, collections, accounting, human resources, procurement, and help desks. Major companies like Bank of America, Dell, AMEX, Citibank, IBM, Accenture, EDS, Oracle, PG, Delta Air Lines, Prudential, and DaimlerChrysler have thousands of employees in India, Philippines, China, Russia, Ireland, Israel, Canada, Poland, and Malaysia.

The acceleration and spread of this trend is a concern because the services sector accounts for a significant component of our nation's employment and GDP. The services sector employs over 83% of the American non-farm workforce population – 86 million jobs in 2002.¹⁷ A wide array of occupations reside in the services sector, ranging from travel related services, healthcare, retail and wholesale trade, information technology, energy, transportation, entertainment, telecommunications, to education services. The services sector is by far the largest component of the U.S. economy, accounting for 66% of U.S. GDP (including government) and 76% of private sector GDP. Over the past several decades revenues generated from the services sector have grown significantly. According to data from the Department of Commerce, the service sector's share of U.S. GDP grew from 49% to 66% between 1959 and 2002, while the manufacturing sector's share dropped from 28% to 14%. This growth has been fueled by “knowledge-intensive industries” which incorporate science, engineering, and technology in their services or in the delivery of their services.

In addition to its vital contribution to GDP and employment, the services sector is the “invisible giant” in the U.S. trade balance. U.S. services exports are the bright spot in the U.S. trade balance, which hit a record deficit of \$542 billion in 2003. U.S. commercial services exports (excluding government services) reached \$291 billion in 2003, despite recent constrained global economic growth. In 2003, U.S. imports of services were \$219 billion, thus the services sector registered a \$74 billion trade surplus, which offset 13% of the 2003 trade in goods deficit. U.S. services exports are forecasted to pass \$400 billion by 2010.¹⁸ Simply put, without the services sector, our trade deficits would be even higher. The service sector's role in employment, new job creation, GDP growth, leadership in development and commercialization of technology, and global competitiveness is often unnoticed, but the role of services is critical.

Current Trends in Offshoring of High Tech Services, Design, and R&D

Job offshoring is no longer restricted to basic service tasks such as data entry and processing, but has expanded to include sophisticated work such as knowledge services, decision analysis, design, engineering, research and development. Having grown familiar with their offshore partners, corporations are now handing over more complex work. As Hewlett Packard chairman Carly Fiorina recently warned, “there is no job that is

¹⁷ U.S. Department of Commerce, International Trade Administration, Office of Service Industries. “Services Exports and the U.S. Economy”, October 2003.

¹⁸ U.S. Dept. Commerce, ITA, “Services Exports and the U.S. Economy”, October 2003.

America's God given right anymore." High tech companies are now offshore outsourcing high paying professional jobs like integrated circuit design, architecture, engineering, prototyping, testing, consulting, medical transcription, statistical analysis, paralegal research, automotive and aerospace design, computer aided design, pharmaceutical, and nanotechnology research. Meanwhile, the typically low unemployment rates for some of these high skill occupations in the United States are rapidly rising. For example, in 2003 the unemployment rate of 6.2% for electrical engineers reached its highest level in two decades. The joblessness rate for computer scientists and system analysts reached a record high of 5.2%. Historically below the national unemployment rate for all workers, unemployment rates for high technology workers continue to remain atypically high with 6.4% for programmers, 7% for computer hardware engineers, and 5.2% for software engineers.¹⁹

The activities U.S. companies are shipping abroad are getting increasingly sophisticated. Even Wall Street investment banks and brokerages such as J.P. Morgan, Lehman Brothers, and Bear, Stearns, & Co. export work in financial analysis, equity analysis, industry reports, tax preparation, market research, and stock research. Radiologists in India and Australia interpret CT scans for patients in American hospitals. Fluor Corporation employs thousands of engineers and draftsmen who work on architectural designs and blueprints in the Philippines, Poland, and India. Statisticians in Bombay process clinical research data for American drug companies. General Electric, which employs 6,000 scientists and engineers in 10 foreign countries, integrates magnet, flat panel, and diagnostic imaging technologies from labs in China, India, Israel, Hungary, and France for various medical equipment. Engineers in Russia design parts of Boeing's airplanes. Researchers in Microsoft's Beijing lab conduct research on computer interface projects such as the digital ink that makes handwriting show up on tablet computers. Intel's China Software Lab in Shanghai, one of four Intel research groups in China, works on projects to enhance Linux technology for Intel based servers, develop the Palm operating system to work with its Xscale chip, and create applications for emailing videos. Scientists at Texas Instrument's research center in India design next generation mobile phone chips. Cisco outsources product R&D to Indian companies in addition to the work done by its own development center in Bangalore, India. HP designed, engineered, and assembled its Proliant server in Singapore, Taiwan, China, and India. The Chinese Academy of Sciences, China's top scientific research institution, and the US Veeco Instruments Inc. opened a nanometer technology center in Beijing in 2002. Motorola performs R&D in its Beijing location, and Caterpillar conducts R&D in Moscow. According to a recent Stimson Center report, IT multinationals have now established some 223 R&D centers in China.

R&D related activity by U.S. owned companies in China grew substantially during the 1990s, especially in the information technology sector. U.S. affiliates in China were among the most R&D intensive overseas affiliates in 2000, making China the eleventh largest host of U.S. R&D expenditures overseas, up from the number 30 spot in 1994. During that time period, U.S. affiliates in China more than doubled.²⁰ U.S.

¹⁹ Ron Hira, Presentation to AAAS S&T Policy Forum, April 23, 2004.

²⁰ NSF Infobrief NSF 04-306.

affiliates in China invest relatively more in R&D compared to affiliates in other countries. In 2000, the ratio of R&D spending to gross domestic product for U.S. affiliates in China was 9.2% compared to 3.3% for the aggregate of U.S. affiliates in all host countries. The \$491 million U.S. spent on R&D in China was concentrated mostly in manufacturing. However, \$15 million was also invested in professional, scientific, and technical services. Investment in China also appears to be targeted where 7.6% of global US FDI position was in electronic and other electrical equipment compared to only 0.9% of global US investment in all industries.²¹

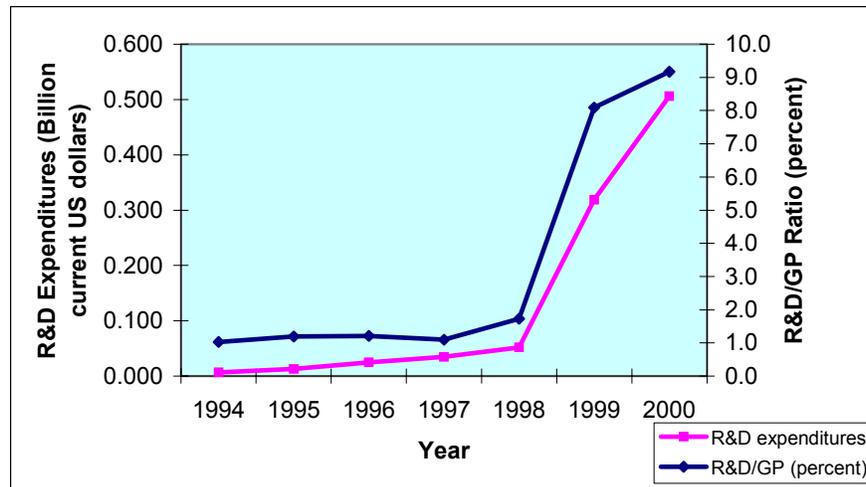


Figure 4. R&D spending by US corporations in China (Data from NSF Infobrief 04-306).

U.S. corporations are moving sophisticated design and R&D overseas to their own subsidiaries abroad or contracting the work to third parties to assist product development in existing manufacturing facilities abroad. The offshore migration of manufacturing is disconcerting because even though the economic impact of manufacturing has been declining in recent decades, the manufacturing sector still performs 64% of U.S. industrial R&D.²² The computer and electronic products sector alone accounted for the largest amount of R&D performed in 1999 among all industrial sectors, 19.7% of all industrial R&D, exceeding the total amount of R&D performed by all universities and colleges combined. The rest of the industrial R&D spending in the United States, 36%, is performed by the services sector, which has been growing significantly since 1983 when it accounted for less than 5% of the industry R&D total.²³

Data collected by the Department of Commerce shows that the rate at which R&D is shifting abroad has accelerated. U.S. corporate R&D expenditures abroad have almost quadrupled from \$4.6 billion in 1986 to \$17.5 billion in 2000.²⁴ This spending abroad represents 9.7% of the total corporate domestic R&D expenditure, a 50% rise from spending levels abroad in 1985.²⁵ This is significant considering private industry funded

²¹ Ibid

²² NSF, Science and Engineering Indicators – 2002 (S&EI), pg 4-53.

²³ NSF, S&EI 2002, pg 4-21.

²⁴ NSF, Research and Development Industry:2000, Table A-11.

²⁵ Donald Dalton, Globalizing Industrial Research and Development, pg33.

more than 68% of all domestic R&D and performed over 75% of the work in 2000.²⁶ R&D activities conducted in private industry largely consist of the development phase of innovation. For example, in 2000 71% of the industrial R&D funds were used to develop products and services rather than conduct basic research²⁷. The continued shift of corporate R&D to overseas is a threat to our economic prosperity and national security.

Why Are Corporations Going Offshore?

(1) Computer & Communications Technologies: As a result of instantaneous telecommunications capacity and affordable high speed computers, any activity that can be digitized is a candidate for offshoring. Global availability of cost effective, high speed digital internet connections, combined with net based and other communications tools such as email, instant messaging, faxes, videoconferences, and cellular phones have empowered foreign workers to provide services that do not necessarily require direct physical contact. For example, telecom capacity between India or China and the United States grew from 0 to 11,000 Gb/S between 1999 and 2001, while bandwidth pricing is almost nothing²⁸. Meanwhile, the cost of a one minute phone call from India to America has dropped by more than 80% since January 2000.²⁹ Improved bandwidth connections enable the sharing and transferring of large data files on a real time basis. Low cost computing and standardized software packages such as SAP, Oracle, PeopleSoft, have further enabled foreign workers to compete for high skill jobs.

(2) Low cost labor: Corporations are increasingly aware of the availability of large quantities of well educated, motivated, and much more affordable labor in foreign countries. Due to the surplus of labor and the low cost of living in developing nations, the labor cost savings can be as high as 90%. Total cost of an engineer in China is

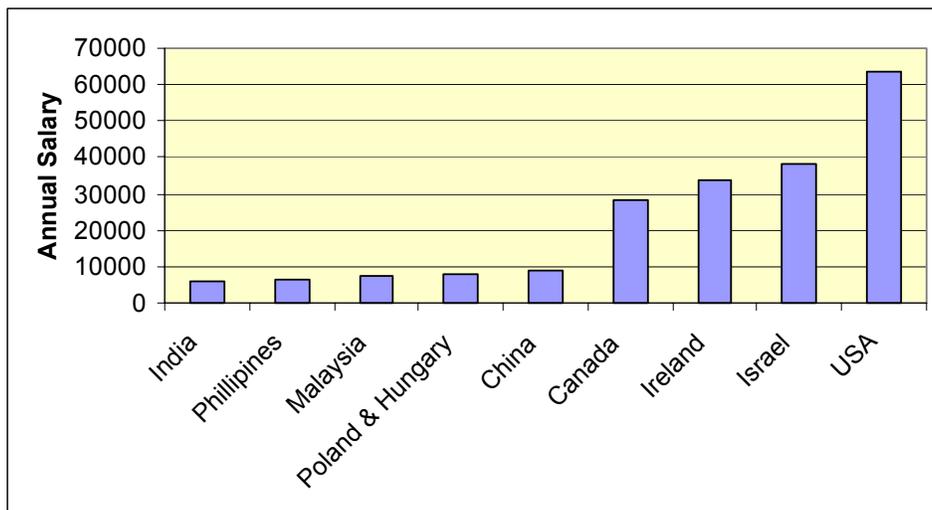


Figure 5. Annual salaries for software programmers in various countries (Computerworld, April 28, 2003).

²⁶ NSF, S&EI 2002, pg 4-21.

²⁷ NSF, S&EI 2002, pg 4-7.

²⁸ Manufacturing & Technology News, Nov 4, 2003.

²⁹ The Economist, "Relocating the Back Office," December 13, 2003.

approximately \$15,000 per year, a tenth of the cost in Silicon Valley³⁰. Indian programmers receive roughly a third to a tenth the hourly wage of American programmers. Figure 5 illustrates the annual salary for a programmer in various countries. Corporations are forced to go offshore when their competitors take advantage of these huge wage disparities. Despite the added costs and risks associated with going offshore, corporations have discovered that they can reduce their costs at least by 45%. By reengineering the process, firms can now save up to 70% of initial costs.³¹ While wages in these countries may eventually rise as their living standards improve, the sheer size of China and India's populations and their far lower costs of living mean that their low wages will put pressure on the U.S. workforce for a very long time to come. When and if their wages reach those in the United States, a new wave of emerging nations may replace current nations providing low wage labor.

(3) Large pool of educated labor: While U.S. education in math and sciences is eroding, the quantity and quality of labor abroad from which corporations can choose is escalating. For example, with 195,364 engineering graduates in 1999, China graduated three times as many engineers as the United States. Moreover, the engineering graduates represented 44.3% of all undergraduate degrees earned in China. In comparison, engineering graduates accounted for only 5.1% of all undergraduate degrees in the U.S. (Figure 6)³². The number of US graduates in engineering and physical sciences is dropping 1% per year.³³ At this rate China is already generating a far larger educated talent pool capable of creating and inventing than the United States. Considering only 2.2% of China's twenty four year old population earned a bachelor's degree in 1999, compared to the 35.3% in the United States, if China succeeds in educating a larger fraction of its population it will have an even greater potential for innovation, leading to more jobs and improved productivity.

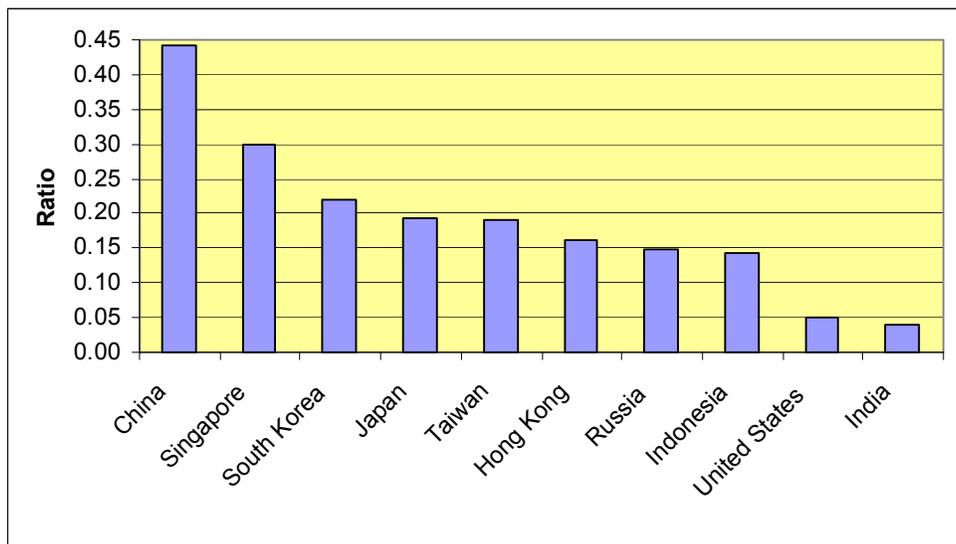


Figure 6. Ratio of engineering degrees to total Bachelor's degrees in various countries.

³⁰ High Tech in China October 28 2002, Business Week.

³¹ Ibid.

³² Science and Engineering Indicators 2002, NSF, Table2-18

³³ Manufacturing and Technology News, October 3, 2003.

Higher education trends are just as staggering. Between 1986 and 1999, China produced science and engineering doctorates at an average annual growth rate of 36.5% (Figure 7). By comparison, the United States had an average annual growth rate of 2.2% during the same period.³⁴ This rate drops to 1.5% when considering only U.S. citizens. As a matter of fact, 48.6% of the science and engineering doctoral degrees in the United States were earned by non-U.S. citizens in 1999 (Figure 7).

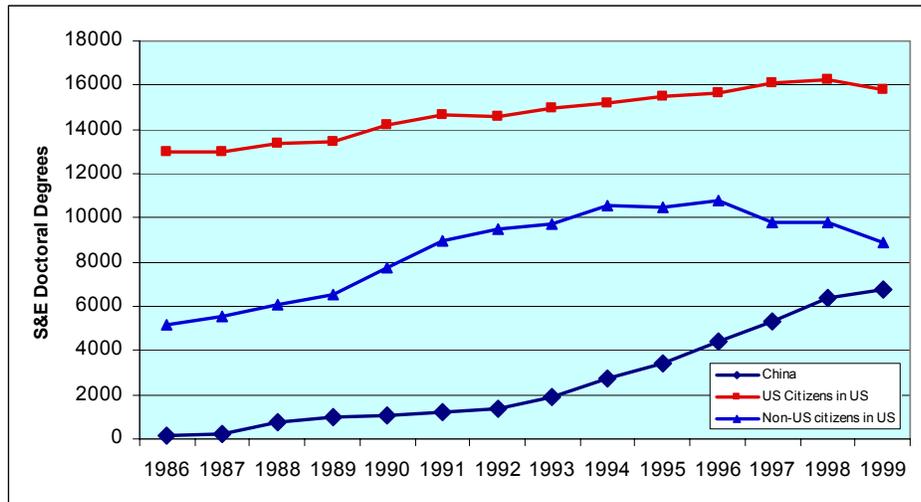


Figure 7. Number of science and engineering doctorate degrees awarded in China, and in the U.S. - to U.S. and non-U.S. citizens.

Foreign-born scientists have made very significant contributions to U.S. technological advancement. U.S. industry, government, and academia have grown highly dependent on the foreign born science and technology workforce. As a matter of fact, in 1999 foreign workers with a BS degree accounted for 17% of the total U.S. science and engineering positions held by people with BS degrees. They also occupied 29% of the jobs held among those with MS degrees, and 38% of the jobs held among those with doctorate degrees. Among PhD holders working in industry, half of the computer scientists and over half of the engineers were non-U.S. citizens.

As global competition for technical talent intensifies and the number of U.S. born science and engineering graduates continues to decline, the United States will have a difficult time meeting its skill needs. Foreign national scientists and engineers educated in the United States are now aggressively being recruited by their homelands where firms are offering competitive salaries, benefits, housing, and stock options. China, for example, is recruiting these individuals by sponsoring all expenses paid visits to China and holding recruiting fairs in Silicon Valley. Between 2000 and 2002, the number of foreign graduates who returned to China doubled. As increasing numbers of foreign scientists head back to their homeland where opportunities abound, the pool of high tech labor and, therefore, the capacity to innovate in the United States becomes more limited, threatening long-term economic viability. Given these alarming statistics, if we are to remain competitive, it is imperative that we revive our society's interest in sciences and improve our science, engineering, and math education.

³⁴ NSF, Science and Engineering Indicators 2002, Tables 2-41 and 2-26.

(4) Foreign government investment and favorable business climate: Committed to becoming global technology leaders, many foreign governments are subsidizing their transportation, energy, building, and telecommunication infrastructures. Many emerging nations are financing high tech research districts near existing manufacturing facilities complete with universities and research laboratories that generate large pools of educated low cost labor. These high technology clusters, emulating U.S. high technology districts such as Silicon Valley, attract scientists, entrepreneurs, and venture capitalists from around the world. Taiwan lures foreign companies to establish R&D centers in designated industrial districts with two years of free rent, followed by four years of reduced rents. Focused on policy changes, tax incentives, and infrastructure support, the Indian government has established IT and call center districts complete with fiber optic and power wiring. The software technology parks of India provide smaller firms space, finance, and infrastructure support, and reduce time-consuming approvals from the government. China has established 53 technology parks that guarantee communication and power connections. The Torch Plan, launched by China's Ministry of Science and Technology, offers funding for academic institutions and new companies engaged in the development and commercialization of software, biotech, nanotechnology, and other high-tech products.

By implementing business friendly policies such as less burdensome taxation, regulation, and litigation environments, foreign countries are further providing U.S. corporations low-cost alternatives for their manufacturing, services, and R&D activities. The Philippines provides a six year tax holiday that includes exemptions from government fees, licenses, and export taxes to companies that set up IT business parks.³⁵ Integrated circuit and software companies in some of China's high tech zones enjoy a five year exemption from central government taxes, followed by five years of 50 percent reduction. The Chinese government is also providing a 14% rebate on value added tax to semiconductor chips produced in China, essentially providing a large subsidy for their domestic suppliers. The United States has recently initiated consultations in the World Trade Organization with China to resolve this dispute.

China has been so successful in creating an attractive business environment that in 2002 it surpassed the US as the most preferred location for foreign direct investment (FDI).³⁶ In 2003, a record \$53.5 billion of foreign direct investment flowed into China, making the country the largest recipient of foreign direct investment in the world. The Chinese subsidiaries of multinational corporations and joint ventures are responsible for the 65 percent of the tripling of Chinese exports over the past decade.³⁷ In China, Hong Kong, Taiwan, and Macao, foreign funded subsidiaries employ 6.75 million workers. After adjusting for inflation, cumulative investments of US multinational corporations in China have grown at an average annual rate of 20.1% since 1994 (Figure 8). Meanwhile, FDI in the United States has reached its lowest level in a decade. Investment in U.S. businesses plummeted from \$300 billion in 2000 to \$30 billion in 2002 (see Figure 10).

³⁵ Computerworld, September 15, 2003, Knowledge Center Outsourcing.

³⁶ A.T. Kearney, FDI Confidence Index, September 2003, Volume 6.

³⁷ Morgan Stanley

While some have argued that foreign “insourcing” outweighs offshore outsourcing by U.S. companies, this data shows the insourcing trend lines are sharply down.

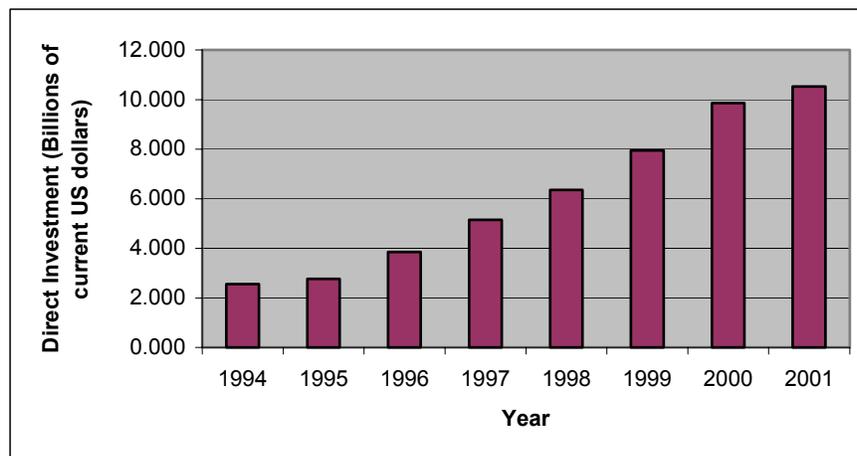


Figure 8. US Direct Investment Position in China (BEA data for assets owned abroad by US corporations with >10% US ownership from NSF Infobrief 04-306).

Developing nations are further enticing foreign companies by skewing investment and trade patterns with protectionist measures. In addition to the migration of jobs, these arrangements lead to the transfer of technology and knowledge. An example of such foreign incentives is the Russian offer to buy Boeing airplanes under the condition that Boeing located some of its design engineering in Russia. These offset arrangements are increasingly widespread. China recently imposed its own special new standard for software encryption in wireless local area network components to be sold in China, requiring foreign companies that want to tap into the vast Chinese markets to collaborate with the 24 Chinese software companies. To avoid being banned from the market, U.S. software companies are forced to perform advanced manufacturing and design work in China, raising the risk of further potential intellectual property theft. This practice is being challenged by some U.S. firms. In another case, to reduce license fee payments to patent-holding foreign companies, China decided to develop and market a new DVD format last year.

(5) Time zones: Another reason for multinational corporations to locate their services and R&D activities in foreign countries is the competitive advantage gained by working around the clock. On any given project, international time zones allow corporations to perform design and R&D work continuously 24 hours a day, 7 days a week. Productivity grows as the work is done in a single regular work day, without the need for overtime pay.

(6) International collaborations: The rising number of international mergers, acquisitions, and collaborations, and improved international protection of intellectual property rights have also contributed to the offshoring of R&D activities. For example, projects such as the International Space Station, Antarctic Field Research, Human Genome Project have allowed numerous countries to collaborate in R&D efforts. From

1990 to 2001, U.S. and Chinese-owned companies and other organizations formed 105 new business alliances with large R&D components.³⁸ The industrial sectors affected by these alliances shifted from manufacturing to services in the late 1990's, with two thirds of the alliances in the services sectors formed after 1996.

(7) Proven and established offshore outsourcing processes: After companies like GE and TI pioneered the offshoring movement in the late 1990s, many other companies followed and the practice has become standardized. Now offshoring is a new management paradigm that corporations are forced to consider in order to remain competitive. Although offshoring began with large corporations, now that the process has matured, small businesses are taking advantage of it. With the emergence of brokers who locate development centers abroad for U.S. companies, the coordination and management of small projects has become cost effective and efficient. Numerous consultants and outsourcing vendors who facilitate the transition can be located easily at web sites such as www.globalsolutionindia.com, www.outsourcing-russia.com, www.outsourcing-ukraine.com, www.shinetechchina.com, www.outsourcephillipines.org, www.outsource2india.com, www.outsourceromania.com.

New Internet based third party outsourcing auctioneers that reach low cost researchers, engineers, and programmers from all over the world are further contributing to the offshoring of skilled labor. Companies are auctioning their design, engineering, software, and research projects on web sites like www.projectspool.com where scientists across the globe compete for the work. Firms of all sizes can tap into vast pools of low cost foreign programmers who bid on software projects listed in www.rentacoder.com, www.GetAFreelancer.com, or www.planet-source-code.com. By posting R&D problems on www.innocentive.com, corporations can solve problems at a low cost with scientists around the globe without the added overhead costs of health and pension benefits.

(8) Access and proximity to large markets: With a combined population of 2.4 billion, China and India are huge potential markets for U.S. products and services. By moving offshore, corporations can gain regulatory approval, perform their market research, and customize their products and services accordingly in a timely manner.

(9) Fiscal Irresponsibility is Tied to Offshoring and Job Losses: A rarely stated factor in the debate over offshoring of manufacturing and high-end services jobs is the massive budget deficit run by the United States. The U.S. budget deficit of almost \$550 billion in FY 2004 is financed to a large degree by foreign "lenders", including Japan, China and other Asian nations. Japan now holds \$440 billion in U.S. government debt and China has more than \$122 billion. Foreigners hold fully 46% of the U.S. national debt. This represents huge leverage over the U.S. economy and leaves our country susceptible to currency and trade manipulation by foreign countries and vulnerable to increased interest rates to continue to attract foreign capital. Currency manipulation by Asian economies helps keep their currencies cheap and props up the value of the U.S. dollar, limiting our exports. These interventions in currency markets are massive and are a leading cause of the loss of manufacturing and services jobs.

³⁸ NSF Infobrief NSF 04-306.

Key Players in Offshore Outsourcing

India: India, with a reputation for high quality work at a low cost and a large population of English speakers, is the most popular destination for skilled IT workforce needs. India had a \$12 billion IT services export industry in 2003, more than 900 software export firms and approximately 415,000 IT professionals, with about 70,000 new IT professionals coming into the workforce each year.³⁹ By 2005, India is projected to be the second largest global provider of applications services (after the United States), with a minimum of 30% annual growth. India's revenues from software and service exports to the United States were roughly \$8.5 billion in 2003, accounting for 70% of its total services exports.

32 out of 58 Indian companies have voluntarily pursued the highest rating level of the Capability Maturity Model (CMM), the standard for assessing the quality of system and software development contractors in the United States. The five major Indian software outsourcing firms are Tata Consulting Services (TCS), Wipro Technologies, Infosys Technologies, Satyam Computer Services, and HCL Technologies. Meanwhile U.S. corporations continue to offshore their operations to India. IBM Global Services, for example, is India's fifth largest employer, with 10,000 staff performing IT services and software work. GE Capital Services has 16,000 staff doing back-office work in India; Oracle has 6,000 India staff doing software and services work, and EDS has 3,500 staff doing IT services work in India.⁴⁰

Despite the recent growth, India's telecommunication infrastructure needs to be improved. India still struggles with low telephone and internet access rates, and state owned companies dominate the telecom services market. Its economic stability and political climate are also high risk factors, considering the rising tension between India and Pakistan.

China: Boasting about one fifth of the total world population, a strong education system, and a government committed to becoming a global technology leader, China is emerging as a major competitor to the United States and India. China had a \$4 billion IT services export industry in 2003 and approximately 400,000 IT professionals, with about 40,000 new IT professionals coming into the workforce each year.⁴¹

However, China's political climate and weak English language skills are significant risks for corporations. The current Chinese software market lacks maturity due to a lack of managerial and technical experience in developing and maintaining complex software systems for large organizations. One key concern with China is the poor intellectual property rights protection (IPR). China's IPR violations cost U.S. firms some \$2.3 billion in lost trade in 2003. China leads in counterfeit goods production. DHS' Customs

³⁹ Gartner Symposium, "Going Offshore to Globally Source IT Services", Frances Karamouzis, October 2002, at p. 10.

⁴⁰ Business Week, "The Rise of India and What It Means for America", December 8, 2003, p. 70.

⁴¹ Gartner Symposium, "Going Offshore to Globally Source IT Services", Frances Karamouzis, October 2002, at p. 10.

and Border Protection seizure statistics show that 50% IPR related seizures involve goods from China. 15-20% of all products made in China are counterfeit, accounting for 8% of China's GDP. Other challenges that complicate offshore outsourcing to China include bureaucratic red tape and complex multicultural project management.

Other Offshoring Markets: According to A.T. Kearney's 2004 offshore attractiveness index, Malaysia ranks as the third most attractive site for offshoring services in BPO. Although a small country with 22 million people, it is expected to challenge India in five years. Other important offshoring markets include the Philippines and Russia. The Philippines has approximately \$1 billion in exported IT services and business processes and 290,000 skilled personnel. The Philippines is targeting the following activities: call centers; business process outsourcing, application development, maintenance and management, animation, and medical transcriptions. Terrorism in the Philippines however is a risk firms must consider. The Russian market for offshore services and software is estimated between \$100-\$200 million. This market is growing between 40-60% per year, although from a small base. Russia's software export industry consists of more than 100 firms and 8,000 IT professionals. Russia is expected to capture 5% market share of offshore service revenue, mostly from North American and Western European markets.⁴²

Possible Impacts of Offshore Outsourcing on the U.S. Economy and Workforce

Although offshoring has both positive and negative consequences, the net impact on the economy is yet to be fully measured. The most significant benefit is that it lowers corporate costs, which benefits both consumers and shareholders. The cost savings boost corporate profits, raising investor confidence. Offshoring has become a matter of survival for some U.S. corporations who have to compete globally for market share. Even venture capitalists now expect young IT companies to have an offshoring component. U.S. revenues grow when offshore providers create new foreign corporate markets for U.S. products such as telecom equipment and computers. As the standard of living improves abroad, new consumers for U.S. products are created. For example, in the first nine months of 2003, Chinese imports were up 40.5 percent over the same period a year ago, the fastest annual increase of the last ten years. Similarly, total exports from U.S. companies to India have grown from \$2.5 billion in 1990 to \$4.1 billion in 2002.

The McKinsey Global Institute study cites an interesting statistic about the aging U.S. population and the impact on offshoring. To maintain the same share of working age population to total population that existed in 2001, 15.6 million additional workers will be required by 2015. Maintaining U.S. living standards, the study argues, will require more innovation, even-greater productivity gains (including offshoring to countries with more workers), or increased immigration into the United States. Offshoring is seen by many companies as an easier option to consider.⁴³ The Information Technology Association of America predicts the "skilled worker gap" to

⁴² Ibid, pp. 10-13.

⁴³ The McKinsey Quarterly, Who Wins in Offshoring, Vivek Agrawal and Diana Farrell at p. 13.

reach 14 million by 2020, as Baby Boomers retire and smaller numbers of knowledge workers enter the U.S. workforce.⁴⁴

On the other hand, America faces serious negative consequences to offshoring. Offshoring of high-tech jobs threatens our national security, exerts downward pressure on high skill wages, and diminishes our tax base. The obvious immediate impact of offshoring is the loss of jobs for American workers. Unlike in previous years when international competition adversely affected American corporations, this time it is the workers who are left exposed while corporations benefit from offshoring.⁴⁵ If offshoring of jobs accelerates and spreads across a wide range of high skill occupations, where will our workforce go next? Future projections for high skill jobs are looking dim. According to the Bureau of Labor Statistics, occupations with the largest jobs growth potential are registered nurses, postsecondary teachers, retail salespersons, customer service representatives, combined food preparation and serving workers, and cashiers. Although three out of the top ten fastest growing occupations are IT related, the net number of jobs in IT will remain relatively small compared to other occupations such as health services.

Corporations argue that offshoring certain tasks allows them to focus on their core competencies. It frees labor and resources that can be applied to other sectors. According to an International Institute of Economics (IIE) study, low cost IT services enabled by offshoring will drive IT demand up and create more jobs.⁴⁶ But will this create more jobs in the United States? The IIE study focuses on offshoring entry level IT related jobs, and does not address the potential risk of losing the experience, skill, and knowledge gained from performing entry level IT work, not to mention the high skill engineering, design, and R&D work that is beginning to move offshore. If entry level IT jobs increasingly move offshore, where will the next generation of IT workers gain the fundamental experience necessary to obtain the higher level IT jobs that the IIE study argues we will retain? Furthermore, as entry level IT jobs become increasingly difficult to find in the United States, we'll have a hard time convincing students to pursue degrees that may lead to entry level IT jobs - in India.

As firms export critical business and technical knowledge, they risk losing core competencies, in house expertise, and future talent. Offshore outsourcing of high skill jobs to foreign nations may mean handing over to foreign nations future innovations that are the direct result of knowledge gained by solving technical problems during manufacturing, design, research and development. A nation's investment in R&D is an indicator of its future economic health. In spite of ongoing globalization over the past several decades, the United States has been able to maintain a healthy economy due to its leadership in innovation. This can be attributed to United States' considerable R&D investment in high technology industries such as computer systems design and related services, software, communications, semiconductor and electronic components.

⁴⁴ "The Technology Policy Imperatives of Global Competitiveness", Harris N. Miller, President, ITAA, October 2003.

⁴⁵ Ron Hira, Presentation to AAAS S&T Policy Forum, April 23, 2004.

⁴⁶ International Economics Policy Briefs, Catherine L. Mann, Number PB03-11, December 2003.

Innovation in high technology sectors drives economic growth by creating high value jobs, boosting productivity, raising wages, providing international competitive advantage, and producing the next generation goods and services. Increased efficiency and productivity derived from advanced materials, tools, and processes generated in high technology industries strengthen other industries, ranging from construction to finance. A continued shift in design and R&D to foreign countries puts all these economic benefits at risk, not to mention may have unintended political and security consequences.

An Aggressive Strategy to Address Offshoring

The effects of offshoring on the manufacturing sector are well known. Since 2000, over 2.7 million Americans have lost their jobs in manufacturing alone. There has been a 17.5% loss of U.S. manufacturing jobs since 2000, the lowest absolute number of manufacturing jobs since 1950. In September 2003, I issued a report on manufacturing outlining the problems facing the sector and proposing a comprehensive plan for revitalizing manufacturing. That plan included greater enforcement of our trade agreements and expanding trade promotion, targeting tax incentives for manufacturing, developing a federal R&D policy to promote innovation, expanding worker skills, and creating a 21st century infrastructure, including expanding broadband networks. I have also issued additional reports on the semiconductor industry and on broadband. These reports are available on my Senate website: www.lieberman.senate.gov.

A comprehensive strategy is also required to address the offshoring of high-end services, IT and R&D jobs. It is no longer just manufacturing and low-end call center jobs going overseas. High-end services and R&D jobs will continue to go offshore because the cost advantages are too attractive. To do nothing not only creates risks for our economic and national security but also disregards the suffering of American workers.

This long-term threat cannot be altered by stop-gap “protectionist” actions. The global economy is upon us and is not going away; we must learn to compete more effectively in it. The appropriate response requires detailed analysis of its magnitude, investigation of possible policy solutions, and a comprehensive plan of action. Therefore, since most of the available information on services and R&D performed abroad is anecdotal, we first must collect and track the volume and nature of jobs moving offshore. We recommend that the Commerce and Labor Departments be required to compile the statistical data necessary to assess the extent to which jobs are going offshore and the job categories affected. This information, while difficult to obtain from companies that fear backlash from workers, politicians, and labor unions, is absolutely essential if we are to get a firm measure of the magnitude of offshoring.

There are no easy solutions to the offshoring challenge. I believe we must adopt a positive approach to deal with the challenges posed to our economy and our workers from offshoring. I propose a five-part strategy including policies to: 1) improve safety nets to assist affected workers, 2) encourage faster and expedited innovation and technology development; 3) ensure effective trade barrier reduction policies and trade

agreement enforcement; 4) invest in workforce education and training; and 5) get our fiscal deficits under control.

1. Improve Safety Nets to Assist Affected Workers

We must provide compensation benefits to workers affected by the offshoring of jobs abroad, and empower them with retraining opportunities. We also need to create an environment in which U.S. workers can rapidly adjust to a dynamic economy with agility.

- **Extend Compensation Benefits to Displaced Services Workers:** Originally established in the Trade Act of 1974, the Trade Adjustment Assistance (TAA) program was most recently amended and expanded by the Trade Adjustment Assistance Reform Act, part of the Trade Act of 2002. Under the TAA Reform Act, workers whose employment is adversely affected by increased imports may apply for Trade Adjustment Assistance. TAA, administered by the Department of Labor, includes a variety of benefits and reemployment services to help unemployed workers prepare for and obtain comparable employment. Workers may be eligible for training, job search and relocation assistance, health insurance tax credit, and other reemployment services. Additionally, weekly Trade Readjustment Allowances (TRA) may be payable to eligible workers following the exhaustion of unemployment benefits. The TAAA Reform Act expanded the TAA program and increased eligibility for the TAA program. Despite these improvements, TAA benefits continue to be limited to workers who produce goods. We must extend TAA benefits to Americans who lose their jobs due to offshoring of services. I have co-sponsored The Services Workers Fairness Act, introduced by Senator Durbin, to ensure that services workers losing their jobs to offshoring are eligible for TAA benefits. I also supported an amendment to the Foreign Sales Corporation-Extraterritorial Income Act by Senators Wyden, Coleman, and Rockefeller to extend the TAA program to cover services workers. Additionally, I co-sponsored, with Senators Reed and Collins, a \$16 million request for the Trade Adjustment Assistance for Firms program in the FY 2005 appropriations for Commerce, Justice, State and the Judiciary. TAA for Firms assists small-medium-sized manufacturing and agricultural companies experiencing job loss due to imports by providing job training and technical assistance.
- **Notify Workers so They Have Time to Prepare.** We must give workers three months notice of jobs being outsourced abroad so they have time to prepare, look for work, and retrain. Notification should also go to the U.S. Labor Department and state agencies responsible for helping laid off employees, and local government officials.
- **Encourage Corporate Sponsored Insurance for Wage Loss:** As part of severance packages and for a small percentage of the savings from offshoring, we can help establish pilot programs where companies can offer insurance to cover wage losses. Offshoring jobs increases costs to the taxpayers, who have to pick up many of the costs of unemployed workers, and to other companies, who face increased

unemployment and other social insurance costs. This approach would attempt to more fairly allocate those costs, and we should consider testing it.

- **Encourage proactive instead of reactive training:**
 - We must extend incentives to subsidize the training of incumbent American workers. New programs where employed workers can continuously update their skills and their ability to compete are critical for Americans to adjust in a rapidly changing tech sector.
 - We need to provide unemployed and incumbent U.S. workers with IT-based tools to rapidly learn new skills. Internet based training based on internet gaming technology will provide effective, convenient, and affordable means for continuous life-long training.

- **Provide agile and rapid retraining for displaced workforce:**
 - We need to promote direct community college interaction with industry to provide mid-career workers a more relevant and timely transition to new careers.
 - We can encourage creative worker training and reintegration programs with industry and government in which corporations and government agencies provide at their option temporary low cost or unpaid internships or apprenticeships in new fields so that workers can quickly acquire new skills on the job. Additional training initiatives are listed above in section 1 under improving safety nets for affected workers.

- **Reform and Enforce Guest Visa Regulations:** The H-1B guest workers visa law is intended to admit foreign professionals, including scientists and technologists, without jeopardizing U.S. jobs, wages, and working conditions. The U.S. has historically achieved huge science and tech benefits from foreign-born talent emigrating here, and H-1B visas are a newer tool to encourage this. The L1 visa program allows multinational corporations to transfer employees from a foreign corporation to a U.S. branch or subsidiary. However, it appears that offshoring is being encouraged by some abuses of these well-intentioned programs. We need careful reforms of these programs so they promote keeping technical talent here, not offshoring jobs.

2. **Encourage Greater Innovation and Technology Development**

- **Increase federal investment in R&D:** We can not afford to lose our competitive advantage in key technologies to foreign countries that are replicating our innovation infrastructure. Foreign governments recognize the importance of technological leadership for economic development, and are launching research initiatives in promising technologies. For example, China has leaped to world's third place in the number of patent application cases in nanotechnology. While we cannot predict the next revolutionary technology that will create new jobs for our displaced workers, we can accelerate the development of such technology by investing in R&D. Federal funding for science and technology (S&T) R&D is vital for our nation's economic

growth and national security. It is through these investments in our nation's future that we ensure our ability to remain competitive in an increasingly globalized economy.

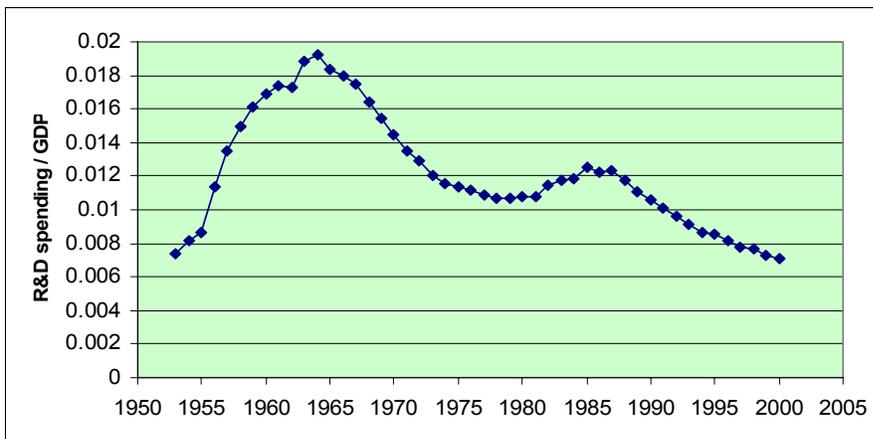


Figure 9. Historical ratio of federal R&D spending to GDP (NSF & BEA data).

Federal investment in R&D as a fraction of our GDP has been declining for decades (Figure 9). To create new disruptive technologies that can generate jobs and improve living standards, we must increase federal funding of R&D, especially in the physical sciences and engineering. Federal funding of research in both the physical sciences and engineering with respect to our GDP has plummeted by 50% since 1970. A disproportionate fraction of the federal funding, 79%, goes to defense and health R&D, and these two fields account for 93% of the proposed increase in the Administration's 2005 funding request.⁴⁷ Although defense and health are critical areas that deserve attention, it is the physical sciences and engineering that provide researchers with the fundamental discoveries and tools that allow new grounds to be broken in other fields. For example, when magnetic resonance was discovered in the 1950's, it was primarily used to study the chemical structure of substances. However, that discovery eventually led to the development of modern magnetic resonance imaging, MRI, a revolutionary medical diagnostic tool that images internal organs.

Federal investment in basic research, the core of our innovation system, where revolutionary ideas are pursued and the S&T workforce is generated, is critical to our nation's economic prosperity. Although, the Administration's 2005 federal budget proposes increases in R&D for defense and homeland security, funding for basic S&T research will, in fact, remain flat or actually decrease. Of the R&D funding proposed for defense, basic and applied research funding will shrink by 18%, while later stage weapons development and acquisition will receive all of the proposed increase. Only 5% of the total proposed 2005 defense R&D budget will go into funding basic research. I therefore strongly recommend that we increase federal investment in basic S&T research, which will translate into new technologies to support both our services and manufacturing sectors.

⁴⁷ House Science Committee Report, www.house.gov/science/press/108/views05.pdf

We have already seen the critical role the government can play in deploying R&D in key sectors threatened by foreign competition. In the 1980's, America was close to losing its semiconductor sector to Japan. But we battled back, and thanks to innovations that grew from a creative public-private partnership called Sematech, we secured our world semiconductor dominance. This dominance provided a key boost to our growth rate and IT leadership in the 90's.

- **Encourage corporate investment in R&D:** To encourage more private industry funded R&D, we must institute permanent and improved R&D tax credits and continue the exclusion of R&D tax credits for R&D performed abroad. This credit is an incentive for corporations to increase spending in high risk research in the U.S. Studies show that every one dollar reduction in the after tax cost of R&D creates one additional dollar of new spending in the short term and two dollars in the long term.⁴⁸
- **Innovation in Services:** As part of increasing R&D, we must pay more attention to the services sector. Corporate R&D, which is aimed largely at the development stage, accounts for 68% of all U.S. R&D. Although our economy is overwhelmingly a services economy, 64% of that corporate R&D is focused on manufacturing. If the U.S. is going to stay competitive in services, it is going to have to innovate to retain world services leadership. In other words, we will have to offer faster, more efficient, higher productivity services than our competitors, otherwise services will continue to migrate offshore. For example, we have an increasingly efficient retail service sector, which has effectively integrated IT advances into such diverse areas as inventory management and distribution systems, multiplying efficiency. Other service sectors are much more resistant to innovation. Healthcare has resisted IT efficiencies and process innovations, and retains major barriers to quality improvements. Our construction and education services sectors also retain major barriers to technology-based innovation. We need a stronger focus on innovation in services, including much more effective transition for IT, communications, and computing advances into services sector improvements in performance and quality. Our services sector is now subject to global competition and we will have to become a services innovator to retain leadership. R&D in general must be increased, and we will need a particular emphasis on service sector R&D in both public and private sector R&D.
- **Invest in broadband infrastructure:** I also believe investing in our truly high-speed broadband infrastructure will stimulate our economy by delivering the next generation of services and products for consumers and businesses. Increased broadband deployment and use will lead to more jobs, improved productivity, and economic growth in a wide range of industries including communication, entertainment, education, and health. This is a key infrastructure we must have to improve our services sector. Other competitor nations are moving much more quickly on this deployment, and our services as well as manufacturing sectors will pay a price unless we catch up. My report on broadband deployment, which can be found on my Senate website, presents detailed proposals on these issues.

⁴⁸ Testimony of Harris N. Miller to U.S. House of Representatives Committee on Small Business, October 20, 2003.

- Create an environment that rewards risk taken by firms:** In the aftermath of the 9/11 attacks, the dot.com bust, Iraq war, and corporate scandals, investment confidence in the U.S. has plummeted. Venture capital and Foreign Direct Investment in the U.S. are the lowest they have been in a decade (Figure 10). Despite recent all time highs in corporate profits (Figure 11), we still are not seeing an investment in plants that can create new jobs. Investment in American plants is the lowest it has been since the 1960's. We need to encourage American businesses to reinvest their profits here in the U.S.

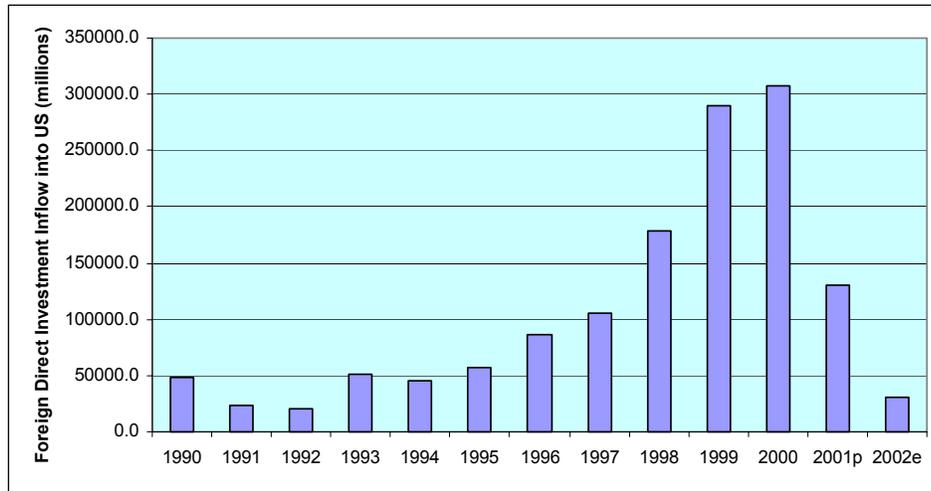


Figure 10. Foreign Direct Investment inflow into the U.S. (OECD data).

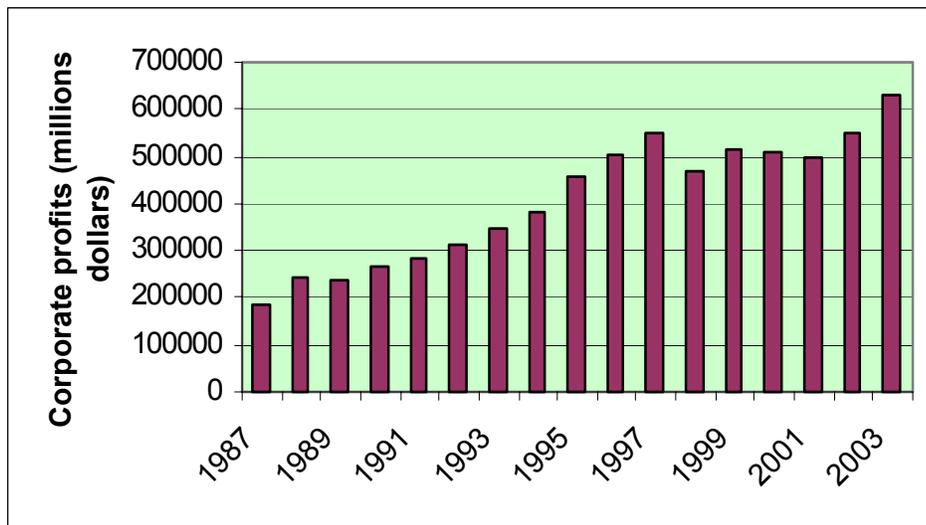


Figure 11. US corporate profits after taxes (BEA data).

As innovative technologies emerge, there are no assurances that we will lead in capturing the new job opportunities created by these advances. We must enable our markets in rapidly transitioning technology into products and services by creating an environment that rewards risks taken by firms and investors. Therefore, I propose we eliminate capital gains for new investments in small companies. We must reduce business and investor risk to promote investment in IT and other advanced technologies by offering “make it in the USA” tax incentives to domestic firms. We should also accelerate asset depreciation schedules to shorten unrealistically long depreciation periods for IT assets whose value declines rapidly due to short product life cycles.

3. Invest in Human Capital Through Education and Training

As globalization restructures world economies, which are increasingly becoming dependent on knowledge-based industries, we must continue to take the lead in ensuring the quality of our workforce. We must continue to field the highest-skilled talent if we expect to retain our standard of living in a highly competitive global economy. We have no other choice. This must be done through revitalized workforce training and education. In today’s economy, education and training will be lifelong efforts. Projections are that in the 21st century, 60% of the new jobs will require skills held by only 20% of today’s workforce. This is an alarming statistic, and one that should propel us to act now to invest in our people.

- **Bridge institutional gaps in education and industry:**
 - Expand the R&D tax credit to encourage private industry to collaborate with universities on science and technology research. These collaboration credits could encourage combining traditional classroom teaching techniques with actual manufacturing and hardware development, and accelerate the transition of academic research to applications.
 - Establish Regional Skills Alliances for manufacturing, where companies partner with local community colleges and economic development organizations to ensure high quality training.
 - Encourage industry participation in K-12 science and math education via tax incentives so that corporations can compensate volunteer scientists and engineers who take the time off from work to serve their local communities. We can use existing and proven models as vehicles to achieve this integration. For example, the Math, Engineering, Science Achievement (MESA) program has been successful in improving science and math participation at all levels in various states.
 - Continue support for the National Science Foundation’s math and science partnership program, which encourages schools and industry to work together to find innovative solutions to complex technological problems. In addition, the Tech Talent Program, which I sponsored, also administered by NSF, provides competitive grants to institutions of higher education to increase their number of science, technology, engineering, and mathematics graduates.

- **Enable retired scientists’ participation in education:** We need to set up programs that enable and encourage retired scientists and engineers to teach part time and mentor students in their local communities. We can empower these retired professionals to infuse themselves into the community schools by minimizing bureaucratic roadblocks to getting involved in the education system.
- **Improve College Readiness Through K-16 Partnerships:** Our high school students need to be better prepared for the rigors of college in all subject matters. Partnerships between K-12 schools and institutions of higher education are an effective way to enhance student learning. Specifically we need to:
 - Strive to align curriculum across education segments. Since many state higher education and K-12 systems remain widely disconnected, high school standards do not properly align with the expectations colleges have for incoming students.
 - Encourage collaboration between K-12 and University faculty. K-12 and university faculties should work together to develop and implement appropriate professional development courses for teachers, counselors, and administrators that are aligned with state standards and higher education competency expectations.

4. Establish and Enforce Effective Trade Policies

Many people think trade is the root of the offshoring problem. To the contrary, a tough-minded trade policy that reduces trade barriers and ensures effective enforcement of the trade agreements we enter into are part of the comprehensive approach we need to address offshoring. The United States represents less than four percent of the world’s population. We won’t be successful if we shut down access to 96% of the world’s consumers and the export markets these represent. Trade gives us access to these vital foreign markets. The real issue is whether we can make our trade policies work for our economy and our people. Exports are the key to our well-being, directly supporting 12 million high-paying American jobs.

Existing U.S. Government Trade Enforcement Programs

A number of U.S. government agencies are involved in trade enforcement programs. The United States Trade Representative (USTR) coordinates the Administration’s monitoring of foreign government compliance with trade agreements, pursues enforcement actions, and is charged to apply the full range of U.S. trade laws when necessary.⁴⁹ USTR works in conjunction with the Departments of Commerce, State and Agriculture to ensure that U.S. trade agreements ensure market access for U.S. companies and create a fair and open trading environment.

USTR has the authority to achieve these objectives through a variety of means: 1) asserting rights through the World Trade Organization, including filing complaints through dispute settlement; 2) monitoring and enforcing bilateral trade agreements; 3)

⁴⁹ 2004 Trade Policy Agency and 2003 Annual Report, United States Trade Representative, p. 209.

invoking U.S. trade laws (including Section 301, unfair government measures, Special 301 for intellectual property rights enforcement, Section 1377 for telecommunications trade problems, and Title VII to address problems in foreign government procurement); and 4) providing technical assistance to countries to ensure that key agreements (such as Agreement on Basic Telecommunications) are implemented on schedule. USTR has filed 64 complaints at the WTO since the WTO was established, successfully concluding 37 cases, by settling 20 cases favorably and prevailing on 17 others through litigation in WTO panels and the WTO Appellate Body.⁵⁰

In 2003, USTR filed four new complaints under WTO dispute settlement procedures and, on March 18, 2004, the United States became the first country to bring a case against China since China joined the WTO in 2001. In this case, the United States seeks consultations with China over a 17% value-added tax (VAT) and rebates from the tax that China offers for domestic production and design of semiconductor devices. The VAT tax rebates violate China's WTO commitments and have created an unlevel playing field for U.S. exporters of semiconductor chips. We welcome the initiation of consultations with China, and the creation of a formal WTO dispute panel should informal consultations fail to resolve this trade dispute for the critically important semiconductor industry. Arguably, USTR needs to be more aggressive in protecting U.S. rights under our trade agreements.

The U.S. Department of Commerce, International Trade Administration also plays an important role in trade enforcement activities. The Trade Compliance Center (TCC) is required to help U.S. exporters facing foreign trade barriers by making sure America's trade agreements work for U.S. businesses, particularly small-medium-enterprises. The TCC responds to trade complaints by assembling experts from ITA and other agencies to help solve compliance problems. TCC has a website (www.export.gov/tcc) with texts of over 300 trade agreements the United States is party to, exporter guides explaining the major WTO and bilateral trade agreements, and a hotline to report trade complaints on-line. In FY 2003, 73 new compliance cases were initiated, and 30 cases were successfully resolved. Special monitoring programs have been put into place for new WTO members, including China. However, only four ITA compliance officers are on staff at U.S. embassies in China, Japan, and the U.S. Mission to the European Union in Brussels.⁵¹ More needs to be done.

The International Trade Administration's Import Administration is also required to help enforce unfair trade laws, primarily dumping and countervailing duty laws. Since 2001, Import Administration has initiated more than 140 new antidumping and countervailing duty investigations, resulting in 57 new orders placed on unfairly traded imports. Assistance provided to U.S. exporters includes: 1) Pre-Petition Counseling (answering questions from potential U.S. petitioners); 2) Subsidies Enforcement Office (monitors foreign government subsidies support programs in steel, textiles, aerospace, manufacturing, agriculture, and paper industries); and 3) Trade Remedy Compliance

⁵⁰ 2004 Trade Policy Agenda and 2003 Annual Report, United States Trade Representative, p. 209.

⁵¹ U.S. Department of Commerce, International Trade Administration, Trade Compliance Center, March 30, 2004.

(monitors import trends and government policies and company practices from key Asian countries including China). Two new enforcement programs are planned, including a China Compliance Office (focusing on antidumping cases with China) and an Unfair Trade Practices Task Force (to identify and investigate foreign unfair trade practices adversely affecting U.S. commercial interests).⁵² These steps should be taken promptly and be adequately staffed.

Other U.S. government agencies, from the Departments of Agriculture, Homeland Security, State, and the U.S. International Trade Commission are also involved in trade policy and trade enforcement activities.

Unfinished Business: Make Trade Policies More Effective and Step Up Enforcement Actions

- **Ensure Greater Access to World Markets for U.S. Exports:** We must continue to fight for greater access to overseas markets, with lower trade and regulatory barriers for U.S. goods and services. This will directly help our exporters, particularly small business, that make up 99% of U.S. business, employ more than half of all U.S. workers and create 75% of all new jobs. The United States should continue to play a leadership role in WTO negotiations in market access and services. And we should continue our pursuit of a regional hemispheric agreement, the Free Trade Area of the Americas (FTAA), as well as bilateral free trade agreements. The United States has bilateral free trade agreements with Singapore, Chile, Jordan, Israel, and the North America Free Trade Agreement (NAFTA). Free Trade Agreements with Australia, Morocco, and the Central American Free Trade Agreement (Costa Rica, El Salvador, Honduras, Nicaragua, and Guatemala, with Dominican Republic to join CAFTA) have been negotiated and await Congressional implementation. Negotiations have begun with Thailand, Bahrain, the Andean Community (Peru, Colombia, Ecuador and Bolivia), the South African Customs Union (Botswana, Lesotho, Namibia, Swaziland and South Africa), and a Middle East Free Trade Agreement.
- **Link Additional Opening of U.S. Market to Genuine Liberalization in Foreign Markets in Both Goods and Services:** The United States has one of the most open markets for trade, both in goods and services. We must insist that our trade partners, including China and India – the destination of many offshored jobs - open their markets and reduce regulatory barriers. As one example, India's WTO services commitments are not extensive and neither China nor India is a signatory to the WTO Government Procurement Agreement, thus their procurement markets are not open and transparent. The United States must insist on much greater liberalization of services and goods markets in India, China and all countries with whom we negotiate in the WTO and in any future bilateral free trade agreements. Our free trade agreements must be fair trade agreements providing access to overseas markets.

⁵² U.S. Department of Commerce, International Trade Administration, Import Administration, March 30, 2004.

- **Bring WTO Dispute Settlement Cases When Trade Violations Occur:** When countries don't live up to the trade agreements they sign, the United States must move swiftly to resolve the disputes. The China VAT tax rebates provided for domestic production discussed above is just one example. China provided illegal subsidies to its semiconductor chip-making plants in violation of WTO agreements. This practice was going on for many, many months, causing lost sales to U.S. semiconductor chip exporters, encouraging an ongoing loss of U.S. semiconductor manufacturing, and threatening related loss of semiconductor design and R&D services. While I welcome the USTR's actions on March 18, 2004 in requesting consultations with China, this enforcement action was very late in coming. This failure to focus on enforcement, and to take action when countries violate trade agreements, occurs too often. Our trade agreements must be strictly enforced.
- **End Unfair Currency Practices in International Trade:** We must end gross manipulation of currency values for competitive advantage by our major trading partners, including China and Japan. China intervenes to maintain the value of its currency at artificially low values relative to the dollar. The Chinese yuan is undervalued as much as 40% and the Japanese yen by 20%. These currency differentials translate to competitive price advantages in both services and goods sectors. In September, 2003, I introduced S. 1592 ("Fair Currency Enforcement Act of 2003") that:

 - Directs the President to begin immediately a 90-day period of bilateral negotiations with those nations that are most egregiously engaged in currency manipulation to bring an end to it;
 - Directs the International Trade Commission during those 90 days to gather facts and prepare the legal basis for action under existing provisions of the International Monetary Fund, the World Trade Organization, and various U.S. trade laws (including sections 301 and 406 of the Trade Act of 1974);
 - Directs the President, in the event that the 90 day bilateral negotiations fail, to institute formal trade proceedings in the appropriate national and international agencies as detailed by the ITC report, and to seek damages and remedies for U.S. manufacturers. If he declines to act, the President must give the Congress detailed reasons and an accounting of his rationale; and
 - Requires the preparation of additional reports and recommendations from the Administration on the impact on our national security due to the loss of key industries (such as semiconductor manufacture) due to currency manipulation; more effective enforcement of existing trade laws and agreements; and better utilization of government resources for trade promotion.
- **Vigorously Defend our Intellectual Property Rights.** A key U.S. trade priority must be to prevent foreign piracy and counterfeiting of U.S. intellectual property. Foreign copyright violations alone cost the U.S. more than \$20 billion in annual losses, according to industry estimates. U.S. copyright-based industries contribute almost \$800 billion to the U.S. economy, and almost \$90 billion in exports and

foreign sales. Patent infringement pushes the costs much higher. The United States Trade Representative estimates the annual cost to U.S. industry due to piracy, counterfeiting, and infringement of intellectual property rights at \$200 to \$250 billion. Recent Congressional testimony on piracy and IPR violations revealed that counterfeited goods from China may account for as much as 80% of the total counterfeited exports to the United States, including trans-shipments from third countries.⁵³ This is a huge and intolerable burden on both our services and manufacturing sectors.

- **Incorporate Workers' Rights and Environmental Protection in Trade Agreements.** As I said in my manufacturing report in September 2003, we must ensure that trade does not become a “race to the bottom” by insisting that appropriate worker rights and environmental protections be incorporated into our trade agreements.⁵⁴ Concerns over labor standards have been raised in the Central America Free Trade Agreement (CAFTA) that the Administration has recently concluded. The strongest possible labor and environmental standards must be included in the trade agreements we negotiate. Failure to insist on fair standards and to ensure they are enforced affects both our services and goods sectors.
- **Remedy Fee Collection and other Problems of Department of Homeland Security's U.S. Customs and Border Protection:** A March 19, 2004 report released by U.S. Customs and Border Protection revealed massive problems collecting millions of dollars of duties from trade remedy cases, particularly those levied against China. Customs' figures reveal that the U.S. government failed to collect \$103 million in antidumping duties from Chinese imports – nearly 80% of the \$130 million in total uncollected duties in 2003. The report alleges that Chinese importers in the United States are seeking to avoid paying duties and that U.S. Customs and Border Protection failed to use the proper type of entry bonds, increasing the likelihood duties would go uncollected.⁵⁵ These are serious allegations and require further investigation by the Department of Homeland Security Inspector General and the General Accounting Office. While terrorism prevention is understandable a primary focus of U.S. Customs and Border Protection, the U.S. government must ensure that all duties are properly collected and distributed to petitioners in antidumping and countervailing duties as required under the Continued Dumping and Subsidy Offset Act, also known as the Byrd amendment. If we fail to collect the duties we are owed, our enforcement efforts become meaningless and we invite our competitors to flout agreements they entered into with us.

⁵³ “Pirates of the 21st Century: The Curse of the Black Market”, Testimony before the Senate Government Affairs Committee, Subcommittee on Oversight of Government Management, Federal Workforce and the District of Columbia, April 20, 2004.

⁵⁴ In 2000 the U.S. – Jordan Free Trade Agreement became the first such U.S. trade agreement to include measures calling for environmental protection and incorporating the basic workers' rights standards of the International Labor Organization's Declaration on Fundamental Principles and Rights at Work.

⁵⁵ “Inside U.S. Trade”, March 26, 2004.

5. Restore Fiscal Sanity

The budget deficit of \$550 billion is staggering and irresponsible. It places a yoke on our children and grandchildren. The United States cannot continue to be a debtor nation. Today we depend upon foreigners to buy dollars to finance our fiscal deficits. Foreign investors hold 46% of U.S. national debt. This reliance of foreign lenders makes us vulnerable to forces beyond our control.

We must get our fiscal house in order. I have introduced legislation, S. 1915, the Honest Government Accounting Act, which focuses on both the annual deficits and the long-term fiscal imbalance. In terms of annual deficits, I have proposed instituting a tough “PayGo” requirement that will require that increases in spending or tax cuts be fully financed and not adversely affect the deficits. I have also proposed that budget reconciliation bills not be used to take action that aggravates the budget deficit. The legislation also focuses intently on accurate accounting for the impending impact of demographics on government finances.

When the 80 million Baby Boomers retire, the surpluses we have been running -- and spending -- from the Social Security and Medicare trust funds will be gone, and we will run large and growing cash deficits. On a present value basis, the funding for these two programs exceeds \$70 trillion and is growing by \$2 trillion each year we do not set aside the funds needed to sustain these programs. Some of this is the shortfall between payroll taxes and premiums, and some of it is the general revenue infusions we need. The point is that these are programs that will make dramatically increased demands on our government’s resources – driven by a demographic tidal wave. The \$70 trillion amount exceeds the total net worth of the United States. If the United States does not put its fiscal house in order, we will suffer as all over-extended borrowers suffer, and the loss in manufacturing and service sector jobs will accelerate.

Conclusion: America Rising to the Latest Challenge

The debate on offshoring has taken center stage in our country. The loss of our manufacturing jobs, and increasingly our services and IT jobs, is real, and it is causing pain to our workers. The offshoring issue is made all the more acute because of the jobless recovery we are in and this Administration’s inability to devise a comprehensive economic policy to restore U.S. competitiveness. The problem is complex, with many components which reinforce each other – the enormous budget deficits which make us dependent on foreign purchases of U.S. securities and facilitate currency manipulation, unbalanced exchange rates, and lost manufacturing and services jobs.

As the challenge of offshoring is multi-faceted, its solution must be comprehensive and integrated. We believe must pursue a positive, growth-oriented strategy to address offshoring. We must develop policies that result in greater innovation and technological development, stronger trade policies, investments in human capital, and fixing the budget deficits. Our country has faced many challenges in the past. With determination, tough choices, and resolve, we will meet this challenge.

America is at its best when we are challenged. Over three hundred years we have assembled the most entrepreneurial and competitive workforce in the world. We are a confident and optimistic people. We love competition and rise to meet it. We are leaders and innovators. We have established the basic rules of the game in which we are now facing fierce competition -- free enterprise, respect for the individual, and the rule of law. That we now are facing fierce competitors is a sign that our values and policies have succeeded. We have fought for these values and they have now taken root throughout the world. Now we find that others can challenge us and occasionally even win. Our response to this must be what it has always been -- to get to work, to be practical, to do what we have the power to do to compete, and to continue to fight for the values and policies that have made this international competition possible. Resting on our laurels will not suffice. Casting blame where that is no more than an excuse will not save us. I am confident we will find that this latest -- and in many ways the most fundamental competitive challenge we have ever faced -- will find in us new visions and new strength and increased prosperity. But we are going to have to get to work on it right now.

Appendix: Offshoring Related Legislation

Federal Legislation

The offshoring issue has generated over a dozen House and Senate bills. The majority have been referred to various Congressional committees, with no movement out of committee to the floor to date. Highlights of federal legislation on offshoring:

- 1) HR 2989 (Appropriations for Departments of Transportation, Treasury and Independent Agencies for FY 2004). The Senate version of the bill included an amendment by Senators Thomas and Voinovich restricting executive agencies' contractor performed activities under OMB Circular A-76 from performing contracted work outside the United States, unless the activity was previously performed by federal government employees outside the United States. The amendment passed by a vote of 95-1, the Senate version of HR 2989 passed October 23, 2003, the measure became law as part of appropriations bill HR 2673, and became Public Law No. 108-199 on January 23, 2004.

- 2) S. 2094/HR 3820 ("United States Worker Protection Act", introduced by Senator Dodd February 12, 2004, referred to Government Affairs Committee. HR 3820 introduced by Reps. DeLauro and Dingell on February 24, 2004 and referred to House Committee on Government Reform). Prohibits federal contracts for the procurement of goods or services from being performed overseas unless the President deems a contract to be in the national security interest of the United States. Exceptions also apply where federal government employees were previously performing these functions outside the U.S. or where the federal government has a requirement for goods or services at a location outside of the U.S. Prohibits offshoring of work relating to privatization of contracts through OMB Circular A-76, and also prohibits state contract work from being performed overseas with money received from federal grants.

- 3) Sen. Dodd introduced an amendment to S. 1637 ("Jumpstart our Business Strength"), a Senate bill to repeal the Foreign Sales Corporation-Extraterritorial Income Act. The Dodd amendment was agreed to by a vote of 70-26, however the Senate has not passed the underlying bill. Like S. 2094, the Dodd amendment contains restrictions on offshoring government contract work involving federal funds. The amendment as passed contains exemptions for national security and to ensure compliance with any trade agreements the U.S. has entered into, including the WTO Government Procurement Agreement. Senator McConnell added a second degree amendment that limits the effect of the Dodd amendment. Within 90 days of passage, the Secretary of Commerce has broad discretion to assess the amendment's impact on net U.S. job gains or losses. If the Commerce Secretary determines that job losses would occur, the amendment would not be implemented.

- 4) S. 2090 (“The Jobs for America Act”, introduced by Senators Daschle and Kennedy February 12, 2004, referred to Health, Education, Labor and Pensions Committee). This bill would amend the Worker Adjustment and Retraining Notification (WARN) Act to require companies to disclose and report whenever they lay off 15 or more workers and send those jobs overseas. Companies must inform affected workers, the Labor Department, state agencies responsible for helping laid off employees, and local government officials. The Act requires companies to give affected workers at least three months advance notice of their termination and require reporting all outsourcing to the Labor Department. The Act would require the Labor Department to compile statistics of offshored jobs and report them annually to Congress and the public.
- 5) Sense of Senate Resolution (introduced February 11, 2004 by Senator Clinton). Resolution opposes efforts to encourage outsourcing of American jobs and adopt legislation providing for a manufacturing tax incentive to encourage job creation in the U.S. and oppose efforts to make it cheaper to send jobs overseas.
- 6) S. 1873 (“Call Center Consumer’s Right to Know Act”, introduced November 17, 2003 by Sen. John Kerry, referred to Committee on Commerce, Science, and Transportation). Require employees at a call center who initiate or receive telephone calls to disclose the physical location of such employees.
- 7) HR 1588 (“National Defense Authorization Act”, Rep. Duncan Hunter (R-CA). House version contained provisions requiring commercial information technology and other DOD procurement to be under the Buy American Act; expand existing domestic content minimums from 50% to 65%; authorize \$100 million fund for new domestic industry or capacity. These “Buy American” provisions were removed during House-Senate conference last session.
- 8) HR 3134 (“American Manufacturing Retention Act”, introduced September 17, 2003 by Rep. Walsh (R-NY), referred to House Committee on Government Reform and House Committee on Armed Services). Bill would require any prospective contractor with U.S. government agencies to employ at least 50% of its employees in the United States.
- 9) HR 2410 (“The Genuine American Flag Act”, introduced June 10, 2003 by Rep. Strickland (D-OH), referred to House Ways and Means Committee). Prohibits importation of U.S. flags produced or manufactured by a foreign country.

Four additional bills have been introduced addressing the L-1 and H1-B visa programs. These visas, for intra-company transfers between countries and technical and specialty occupations respectively, affect workers coming into the United States.

- 10) S. 1635 (“L-1 Visa Reform Act of 2003”, introduced September 17, 2003 by Sen. Chambliss (R-GA), referred to Senate Judiciary Committee). Individuals not

eligible for L-1 visas if the alien is controlled or supervised by an unaffiliated employer.

11) S. 1452/HR 2849 (introduced July 21, 2003 by Sen. Dodd (D-CT) and Rep Nancy Johnson (R-CT) Restrictive measures against employers using L visas.

12) HR 2702 (introduced July 10, 2003 by Rep. DeLauro (R-CT), referred to House Judiciary Committee). Restrictive measures against employers using L visas.

13) HR 2154 (introduced May 19, 2003 by Rep. Mica (R-FL), referred to House Judiciary Committee). Requires employers petitioning for L-1 visas to file applications with Labor Department stating that employees will not be placed with employers where employee's work duties are controlled by a third party.

State Legislation

Since May 2003, 33 states have introduced offshoring legislation – 30 states introducing legislation since January 2004.⁵⁶ The bills ban or restrict the use of foreign labor in state government contracts, targeting practices such as contracting call center operations to private firms that subcontract work to centers in India, Mexico and elsewhere.

Most of the state bills propose one of more of the following:

- 1) banning state contracts in which any part of the work is performed by persons who are not U.S. citizens or authorized by federal law to work in the United States. Such bans are under consideration in California, Colorado, Indiana, Kansas, Michigan, New Jersey, South Dakota, Tennessee, Virginia, Washington and Wisconsin. A few states make exceptions for services that cannot be obtained in the United States. A number of states specifically prohibit or restrict state contracts performed outside the United States.
- 2) prohibiting procurement contracts for work involving handling of personal information of state residents when any portion of the work is performed abroad, directly or indirectly through a subcontractor. A Missouri bill defines personal information as anything beyond name, address and phone number.
- 3) requiring call center staff to disclose their location to callers (Georgia, Hawaii, New Jersey, New York, Tennessee, Vermont, and Washington). The New Jersey and Washington bills would require overseas call center staff to offer to reroute incoming calls to U.S.-based call centers.

⁵⁶ The thirty three states are: Pennsylvania, Kentucky, West Virginia, Arizona, Alabama, Georgia, Vermont, Illinois, Iowa, Idaho, Colorado, Minnesota, New Mexico, Maryland, South Dakota, Tennessee, Nebraska, Washington, California, Kansas, Mississippi, Indiana, Virginia, Wisconsin, New Jersey, Missouri, South Carolina, Michigan, North Carolina, Florida, Hawaii, New York, and Connecticut.

- 4) granting price preferences to in-state and American businesses. Indiana and Virginia bills provide for such price preferences as long as the in-state or American bid does not exceed a foreign bid by more than a certain dollar amount or percentage.

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