

Road Map to Renewal

INVEST IN OUR FUTURE
BUILD ON OUR STRENGTHS
PLAY TO WIN

JOBS COUNCIL



PRESIDENT'S COUNCIL
ON JOBS AND COMPETITIVENESS

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JOBS COUNCIL



**PRESIDENT'S COUNCIL
ON JOBS AND COMPETITIVENESS**

Road Map to Renewal

At the outset, let me say that America can continue to compete and win in the global economy. The Council on Jobs and Competitiveness is confident of that. But we can't, as a nation, afford to be complacent. Our ability to pioneer industries, create good jobs and ensure that America's best days remain ahead of us will be determined by whether we forge consensus around smart policy changes in Washington, D.C., and galvanize the private sector to help us write the next great chapter in the American story.

A year ago, President Obama created the Jobs Council and tasked us to develop a set of recommendations to create jobs in the short term and improve our nation's competitiveness over the long term. We brought to the table a broad array of perspectives and spent considerable time traveling our country to listen and learn.

Let me set the stage. Our competitiveness has eroded over the past decades. We have lost ground in metrics ranging from education to infrastructure to exports. We're living in a different world than we lived in 30 or 20 or even 10 years ago. Other countries are getting better. Our regulations are more complex. Investment has been slow to return since the financial crisis. Further, we must reduce our budget deficit so that we can compete in the future, and we have fewer levers today than in the past.

At the same time, America remains an optimistic and entrepreneurial country. Our people and companies are strong. When we compete from our strengths, we can and do win.

I'm proud to say the Council has made considerable progress. We have put forth recommendations that we are confident will enable us to accelerate job creation and ensure our long-term competitiveness. We have worked hard to ensure that every voice on the Council is heard, from small business, from labor, from every corner of the economy. And while not every member of the Council agrees on every aspect of every recommendation, there is a strong consensus that the time

to act is now and that our recommendations will move the needle in a very positive manner.

So, let me outline our work. You can find the details in this report at www.jobs-council.com.

Focus on Job Supply and Demand (June Report Out)

1. **Put in place training, awareness and simplification programs designed to fill the open jobs today and proposed steps to unlock jobs demand.** We recommended initiatives for immediate action.

Accelerate Job Creation (October Report Out)

2. **Accelerate infrastructure investment to create jobs and improve competitiveness.** We recommended initiatives for the public and private sector that could create millions of jobs.
3. **Create and nurture high-growth enterprises.** We recommended ways to facilitate new business creation so that small and high-growth companies can continue to be the engines of job growth.
4. **Boost exports and promote foreign direct investment.** We recommended ways to gain share of the global economy and, at the same time, make it more attractive for American companies to invest at home.
5. **Streamline regulatory burdens and improve permitting cycle time, focusing in those areas that could create the most jobs.** We recommended multiple initiatives to improve speed and effectiveness.
6. **Increase the talent pool of engineers and advanced manufacturing talent.** We recommended initiatives for high-skill education and training, focusing on increasing the supply of advanced manufacturing talent and graduating more engineers.

Improve Systems of Competitiveness (Today)

7. **Invest in education and R&D to ensure we capture the future.** Both are foundations for America's competitiveness.
8. **Rejuvenate classic strengths in manufacturing and energy so that we can be the best in the world.** We must rebuild the industries that made this country great.
9. **Reform our systems of regulation and taxation so that we can play to win in the 21st century.** Our systems are old and complicated; we must rejuvenate them now.

Our recommendations are specific and practical and provide a clear road map for action. We have a team working on implementation in the executive branch at the Office of Management and Budget. We have reached out to the private sector through the National Association of Manufacturers, Business Roundtable and others. Some of our ideas could be aided by bipartisan legislation.

In the end, government-led initiatives will not create the jobs we need to reduce unemployment in a sustainable way. The private sector must lead. But the government can—and must—create the environment needed for entrepreneurs to start businesses and for executives to expand existing companies.

Creating jobs and competitiveness will improve the national outlook for the future. People want to work, and paychecks create confidence. To get there, we need a different sense of priorities. It is hard to say that jobs and competitiveness are supported by a national sense of urgency. If they were, we would be further along on infrastructure, our regulations would have better context for competitiveness, and we could have a meaningful discussion about building our human resources by improving education and high-skilled immigration. We need to work better together.

Working together requires an improved tone. I now have a better appreciation of the pressures and crosscurrents facing elected officials. There's too much blame and too little empathy. No wonder the public tunes out. All of us—especially leaders in business and civil society—have a duty to help make the entire debate more constructive.

I am a member of the business community and proud of it. American business is so diverse that it is difficult for us to speak with one voice. I know, however, that all of my colleagues are eager to help build a more competitive America.

It has been an honor to serve our President and our country on this Council. I have immense respect for our Council members. We will work hard to see our ideas implemented. We remain optimistic about the future of our country.



Jeffrey R. Immelt
Chairman, President's Council on
Jobs and Competitiveness

INTRODUCTION

The Council's Mission: Jobs and Competitiveness

When President Obama convened this Council in February 2011 with a broad mandate to boost jobs and competitiveness, we quickly agreed to come up with actionable recommendations and organized our efforts into three streams of work.

Initial June recommendations

The urgency of the jobs crisis meant we needed to offer tangible ideas fast that could help catalyze job growth. In our initial June recommendations, the Council did just that. The ideas included speeding visa cycles to boost U.S. market share in tourism, commercial building energy retrofits and filling job openings in health care and advanced manufacturing via crash training programs. At the same time, the Council pushed initiatives to help some of our hardest-hit sectors, such as construction and manufacturing, where many workers saw their jobs disappear during the recession.

Interim Report: “Taking Action, Building Confidence”

With the administration already working to implement our June recommendations, the Council turned next to ways to accelerate job creation over the next two to five years. Our interim report in October, “Taking Action, Building Confidence,” focused on five major initiatives that involve more moving parts and thus take more time to get right: accelerating investment in infrastructure and energy; igniting entrepreneurship and increasing the number and scale of small businesses and high-growth firms; boosting job-creating inward investment into the United States through a National Investment Initiative; simplifying regulatory review and streamlining project approvals; and ensuring that America has the talent to fill existing job openings and boost future job creation.

Year-End Report: “Road Map to Renewal”

While the jobs crisis plainly calls for a sense of urgency, the President was clear that he also wanted us to look over the horizon and offer ideas on renewing American

competitiveness once our near-term challenges are behind us. Our year-end thus addresses the fundamental underpinnings of American prosperity in a global age. It lays out an agenda to invest in our future (via education and innovation), build on our strengths (in manufacturing and energy) and play to win (by making overdue tax and regulatory reforms to meet the competitive challenge).

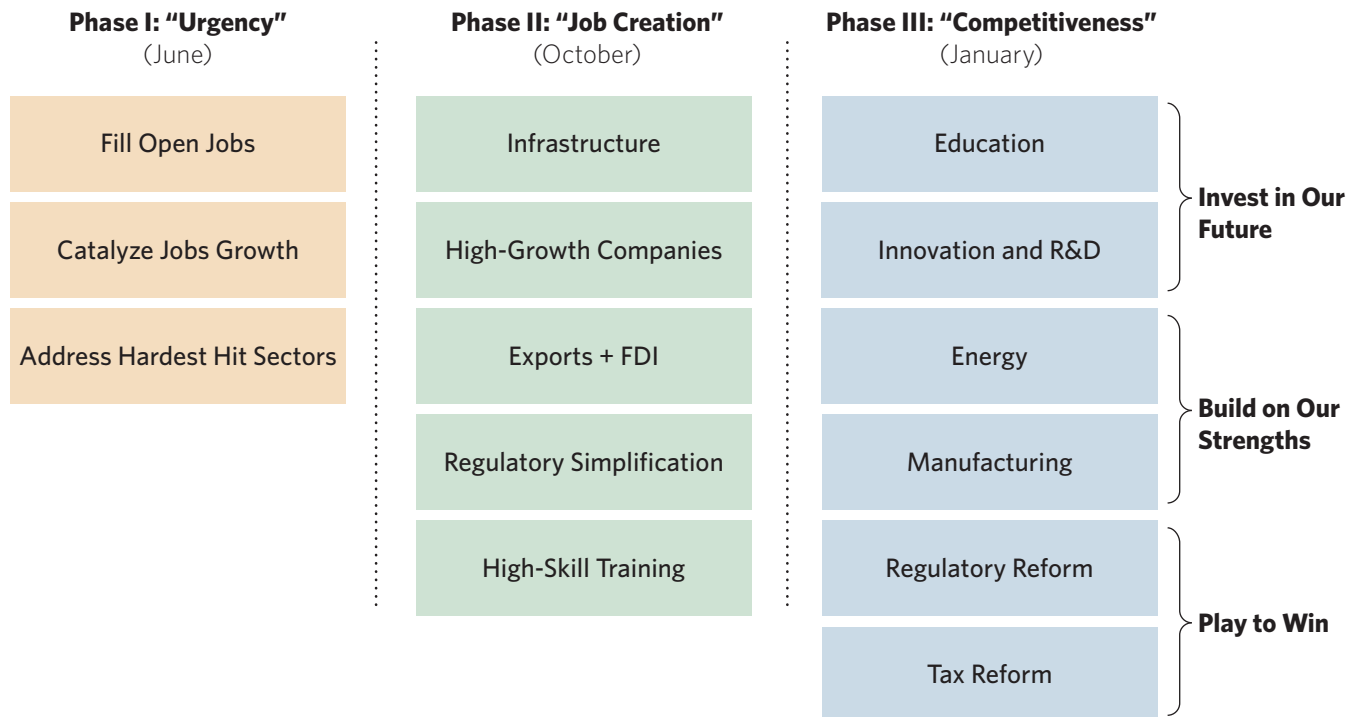
We hope this year-end will contribute to the national debate about how to renew our economic promise. We begin, as any such assessment must, by defining the challenge.

AMERICA'S CHALLENGE: LIFTING OUR ASPIRATIONS IN A GLOBAL AGE

If you want to shape where you're going, start by being clear on where you are. The U.S. economy is in the midst of a decades-long transition from an era in which we faced little global competition to one in which globalization and rapid technological change will compel us to rethink our formula for success. What's more, the pace of change is accelerating, with some experts predicting that we'll see more change in the next 30 years than in the previous 300. The question is how to renew the sources of American competitiveness so that we can thrive in this emerging world. The answer has to begin with an honest reckoning of our situation.

Our workforce continues to lead the world in productivity, contributing more than \$59 per hour in output on average compared to \$54 per hour for the average German worker and \$26 for the average South Korean.¹ Impressively, we still have more than a quarter of the world's working-age adults with some level of higher education.² However, skills gaps are emerging that hurt the resilience of our workforce as well as the ability of businesses to find the talent they need. These gaps start in primary and secondary school, where the United States trails its peers in academic achievement, scoring lower in math than 30 of the other 65 countries and lower in science than 22 of the countries that

Jobs Council Overview and Plan



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participated in the Program for International Assessment (PISA) achievement tests for 15-year-olds.³ In postsecondary attainment, while we have the third highest percentage of 55- to 64-year-olds with college degrees, when it comes to 25- to 34-year-olds, we've fallen to 16th internationally.⁴ Even as more and more jobs require technical skills, only 15% of U.S. college graduates go into scientific and technical disciplines, compared to 23% for the G-7 and 39% for China.⁵ Roughly half of U.S. employers say they're having

a hard time filling open positions with qualified workers, especially in technical fields; globally, employers find this to be true only about a third of the time.⁶

On measures of business environment we also have cause for concern. At 39.2%, America's statutory corporate tax rate—including taxes at the federal and state and local levels—is substantially higher than the average for other advanced nations. And while it is true that many corporations pay a lower effective rate thanks to various deductions and exemptions, this added tax code complexity has a cost. The time and expense of preparing tax forms are estimated to cost the United States a staggering 1% of gross domestic product (GDP) annually.⁷ In addition, while the United States has long been a model for other nations when it comes to the sophistication of our regulatory processes, in recent years we've slipped on some global rankings of business-friendliness, and such nations as Australia have outpaced us with impressive regulatory streamlinings credited with boosting economic growth. Early efforts at streamlining and simplifying U.S. regulations suggest great value is at stake—with more than \$4 billion of savings identified and more than 55 million man-hours of paper work eliminated in recent federal regulatory improvement efforts.⁸

The United States has a low-cost electricity advantage over many of its competitors due to our nation's diverse sources of energy, including recent breakthroughs in shale gas. The average industrial electricity price in the United States is 43% lower than its equivalent in China.⁹ However, only 17% of the United States' total energy consumption comes from low-carbon sources¹⁰ even though we currently lead the world in total renewable energy installed capacity at 53.4 gigawatts.^{11*} But China is closing in with 52.5 gigawatts of installed capacity, and it invested nearly twice what America did in renewable energy in 2009.¹²

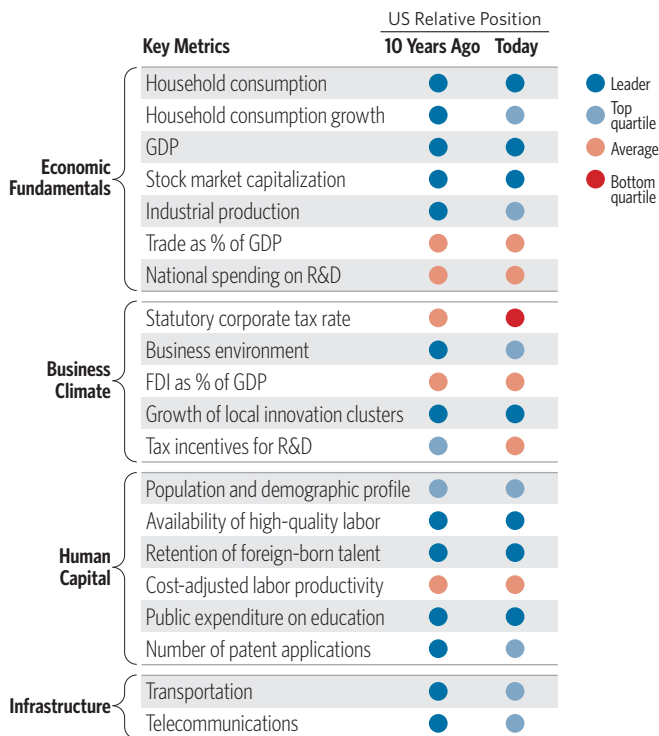
Energy is not the only place where U.S. leadership in innovation is being challenged. To be sure, the nation that gave the world airplanes, telephones, the integrated circuit, the Internet, the biotechnology industry and much more has a predictably strong track record on invention. We continue to have the world's most productive research and innovation clusters, with Silicon Valley and the Research Triangle in North Carolina serving as models that other nations seek to emulate. And for the past decade the United States has produced almost as many internationally recognized patents as the rest of the world combined.¹³

Nevertheless, other nations are mounting historic drives to catch up. U.S. federal government research and development (R&D) spending, which is a major source of support for basic R&D, has fallen over the years as a share of GDP to under 0.8%; however, total R&D spent as a fraction of GDP (across public and private sources) has remained roughly consistent, hovering at approximately 2.6% of GDP for most of the past decade until recently.¹⁴ And while recent investments have bumped federal support for R&D in the past few years, many of these investments may face trouble because of pressing fiscal constraints. China, conversely, has more than doubled its R&D spending as a percentage of GDP from 1999 to 2009,¹⁵ increasing from 0.8% of GDP to 1.7%, with the declared goal of moving from "made in China" to "created in China."¹⁶ Today, Japan and South Korea annually spend almost a percentage point more of GDP on R&D than does the United States.¹⁷ In addition, the decline in public support for R&D threatens the lion's share of funding for basic research, which has historically catalyzed major breakthroughs and the creation of whole industries.

The threat to American leadership in innovation extends beyond lagging R&D investment. Private-sector innovation is threatened when critical manufacturing

U.S. 10-Year Performance Trend

U.S. relative position



U.S. performance on a sample of country attractiveness indicators is declining relative to other countries.

Source: Exhibit 31, *Growth and Competitiveness in the United States: the role of its multinational companies*, McKinsey Global Institute, June 2010.

activities move offshore (this trend is discussed further in this report's manufacturing section). In the tradable sectors, in which businesses can locate employment anywhere, U.S. performance has lagged. If the United States is to retain its innovative edge, we must attract manufacturing investment, which helps fuel the next generation of ideas.

Taken together, these trends present a challenging picture. Global competition is growing more fierce every year. As economic activity has become more dispersed around the world, other nations have begun setting the pace on important dimensions that contribute to competitiveness. As part of a smart strategy, the United States can learn from these examples, just as other nations have long emulated America's best ideas. Top global businesses continually benchmark their operations against the best in the world in order to improve. On competitiveness, the United States should benchmark its performance as well.

* Note: Low carbon includes wind, solar/PV, biofuels, wood, geothermal, and hydropower and nuclear power.

A STRATEGY TO COMPETE

Some look at indices of America's recent performance and worry that our moment has waned, but the Council believes these trend lines can be reversed. In a new century, this requires all of us to think and act differently. We're building on enormous strengths built over generations, including a skilled workforce, the world's top research universities, a nimble system of venture capital finance and a culture of creativity and entrepreneurship. With other nations raising their game, however, an agenda for American renewal won't happen by accident. We need a strategy. We need to reach a new, pragmatic consensus on the role of the public and private sectors in fueling the next generation of growth. And we need a sense of urgency; in this global era, if you're standing still, you're falling behind.

The Council proposes three broad mantras or watchwords that the United States must now live by to compete in a global age. In addition, we offer specific recommendations to make each thematic initiative actionable and concrete.

Invest in our future

First, we must invest in our future by ensuring that our people have the right education and skills to be the world's most competitive workforce, and by cultivating a vibrant innovation ecosystem that supports ideas from lab to scale-up. In education, we need to fundamentally realign workforce training around the skills employers actually demand; emphasize high-quality preschool education; bolster the teaching profession; and speed the rollout of high, common and internationally benchmarked standards for what children should learn. On innovation, we need to regain our edge by, among other things, raising our national investment in R&D to at least 3.0% of GDP and ideally more.

Build on our strengths

Second, we must build on our strengths in the critical sectors of energy and manufacturing. In energy, we need an "all-in" strategy that harnesses our natural resource advantage and our gift for innovation, both by scaling up and supporting renewables while responsibly developing newly accessible unconventional supplies. At the same time, we need to stretch our resources by slashing today's crippling energy waste, from our buildings to our national fleets and beyond. In the manufacturing sector, we need to double down to support a resurgence that's not only vital for jobs but also inextricably linked to the future of innovation itself.

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Play to win

Finally, we must play to win, our shorthand for finally getting toughminded about the barriers to competitiveness posed by our regulatory and tax regimes. Old ways of thinking just won't cut it in a world where other nations have gained an edge through a generation of smart reforms. To start, we need to cut corporate tax rates, eliminate loopholes, broaden the base and improve the competitiveness of our tax code. When it comes to regulatory processes and approvals, we need to emphasize smart and efficient regulation that protects people and the environment while unleashing economic growth.

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Invest in our future, build on our strengths and play to win—if we are to renew our competitiveness for the century ahead, these are the mantras we must not only articulate but act upon with specific policies and initiatives. This report urges the nation to execute the ideas in each of these three areas that the Council believes can help spell the difference between American renewal and American decline.

The Council believes that Americans are ready to answer a call to renewal. We hope all Americans will consider these ideas and work together to rejuvenate our economy. ★

INVEST IN
OUR FUTURE

INVEST IN OUR FUTURE

Education

As business and labor leaders, we know that strong education and professional training is critical to producing the skilled workers who drive our nation's economic success. And the CEOs on the Council agree that business leaders have a pivotal role to play in making sure that our nation understands how critical it is that our workers be educated and trained for maximum success. We must bolster current and future workforce skills to ensure the competitiveness of the American economy.

We call broadly on the business community to engage and to work with local schools and governments, as well as the administration and Congress to address this urgent need. It will take both systematic work on policy and resource allocation, and hands-on commitment with schools, universities and community colleges in our communities. There are many effective efforts already underway across the country where business can lead and help ensure greater scale and effectiveness.

Education is something we simply have to get right; it is essential to every other strategy we recommend in this report. There are two broad outcomes we need to achieve. We need to identify the skills employers need and ensure that educational programs and worker training programs help students and workers acquire those skills. And we need to broadly improve educational outcomes across America, which requires, among other things, an overarching commitment to effective teaching. As business leaders we believe a focus on data, STEM (science, technology, engineering and math) education, and standards are critical to accomplishing these goals. More specifically:

- Providing clear performance data for the full spectrum of educational institutions (including pre-K–12 and higher education) can empower parents, students, education providers, government and employers to drive systemic improvements in education and better match labor skills supply with employer demand.
- Improving STEM education throughout our educational system is critical in an increasingly technical world.
- Raising standards across the educational system is a fundamental tool for improvement, including speeding the implementation of the Common Core State Standards and expanding them to science in collaboration with the nation's governors.

THE CASE FOR COMPETITIVENESS

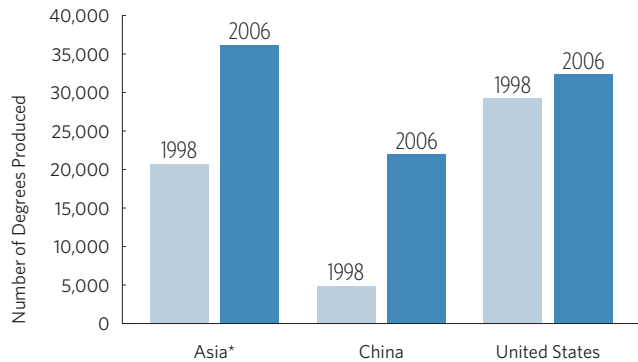
With other nations raising their game, America's position as a global leader in education is at risk. Projections indicate that by 2020 we will have 1.5 million too few college graduates as compared with employer demand.¹⁸ When asked about skilled production jobs, 74% of businesses said that workforce shortages or skills deficiencies were having a significant negative impact on their ability to expand operations or improve productivity.¹⁹ In the U.S. manufacturing sector, a survey of 94 CEOs estimated the total impact of the skilled labor shortage at \$4.7 billion, an average loss of \$50 million per manufacturing firm.²⁰ Fitch Ratings, in a report issued in July 2011, noted that skilled labor shortages in mining and software industries would lead to decreased profitability for firms in those sectors.²¹

These findings reflect several factors. After high school, American workers confront a postsecondary system that is frequently decoupled from employer needs. Those seeking postsecondary education or training typically lack data to help them pick a path with good job prospects that links the skills they might learn to the jobs they might get. Furthermore, worker training is not tied closely to employer needs. These factors help explain why businesses can't find employees they need; and why many would-be employees find themselves ineligible for good jobs because they lack the required skills.

As technical skills become increasingly important, the gap between employer needs and workforce skills is starkest in the critical areas of STEM education. Yet while demand is growing rapidly, the United States is on track to respond with only modest increases in the number of graduates in

Science and engineering degrees in the U.S. and in Asia

S&E doctoral degree production



*Asia includes China in its total.

Source: *The New Geography of Global Innovation*, Sept 2010; OECD, National Ministries of Education

STEM-related fields.²² In fact, only 1.5% of 25- to 34-year-olds in the workplace gained a higher education degree in a science-related field, putting America in the bottom third of all OECD countries.²³ In addition, employers want workforce training to focus on nontechnical skills that cut across industries, such as the ability to operate in different cultural settings, communicate effectively and think creatively.²⁴ Unfortunately, these skills gaps in our workforce are poised to widen due to the growing complexity of the work, the rise of skill-intensive sectors and the retirement of the baby boom generation.

These issues extend back through the K–12 pipeline and are the result of long-term trends. In 1983, “A Nation at Risk” spoke famously of the “rising tide of mediocrity” that threatened our schools. Nearly 30 years later, the tide has come in. Since that landmark report, our challenges have been compounded by an increasingly competitive global economy in which U.S. efforts haven’t kept pace with the dramatic improvement other nations have made in their education and professional training systems. Today, only one-quarter of America’s 52 million K–12 students are performing on par with the average performance of the best five school systems in the world—which are now located in Singapore, Hong Kong, Finland, Taiwan and South Korea.²⁵ Things look even more challenging in math and science. The latest research shows that 16 countries produce twice or more the percentage of advanced math students than does the United States.²⁶

Our failure to fully develop our nation’s human potential imposes great risk on our future living standards and business competitiveness. A 2009 study by McKinsey found

Only one-quarter of America’s 52 million K–12 students are performing on par with the average performance of the best five school systems in the world—which are now located in Singapore, Hong Kong, Finland, Taiwan and South Korea.

the cost of America’s K–12 achievement gap compared with the world’s top-performing countries reached as high as \$2.3 trillion in 2008 alone.²⁷ Many groups have addressed this issue in recent years, and we’ve consulted broadly to better understand the challenges and the kinds of effective, scalable solutions that can meet them.

RECOMMENDATIONS

Given the business community’s unique place in the education ecosystem—both as a major “consumer” of the education “product” as well as an investor in the education system through philanthropic and tax dollars—business has an opportunity to be an essential voice in influencing the nation’s education policy, practice and innovation. The Council is calling for a series of actions that could realign our higher education systems and lifelong learning programs to better meet workforce and student needs, even as we transform our education system from preschool to high school. We call for business and labor leaders, states, the federal government and other groups with a stake in these issues to coordinate efforts on two fronts:

Higher-education systems and lifelong programs

Align the training needs of workers and skills demanded by employers with education and workforce training programs.

Education system from preschool to K–12

Emphasize high-quality preschool; accelerate the implementation of the Common Core State Standards (and expand them to science and ideally preschool standards); bolster the teaching profession; and improve the availability of performance data to drive systemic improvements.

In the remainder of this chapter we detail specific recommendations to implement these goals.

POSTSECONDARY EDUCATION AND LIFELONG LEARNING PRIORITIES: OUR RECOMMENDATIONS

It's axiomatic that a high school education alone is no longer a path to the middle class, but the numbers behind this truism are still startling. In 1970, just one in four middle-class workers had (and needed) a postsecondary degree; today, nearly two in three do.²⁸ Ninety percent of workers with just a high school degree end up in low-wage occupations (which typically aren't growing). According to the Hamilton Project, workers with less education experience higher job loss during recessions and remain unemployed longer.²⁹

Unfortunately, the need for postsecondary attainment has become urgent just as America's leadership in producing such credentials has been eclipsed. In the 1990s, the United States ranked fifth among OECD nations for postsecondary graduation rates, but we've since slipped to 16th out of 30 member nations.³⁰ Only half of all enrolled community college students complete an associate's degree after five years.³¹ Once they graduate, because their skills are poorly matched to the job market, many are unable to find jobs despite having invested significant time and money getting their degrees.³² While other OECD nations used the recession to improve the quality of their postsecondary education, state-run college systems in the United States have seen significant cuts as states struggle to balance budgets.³³

The challenge extends to mid-career training as well. Many displaced workers can't find meaningful retraining to put them on a path to promising new employment. Workforce training institutions are largely isolated and, despite a few inspiring exceptions, have little effective collaboration with businesses and other educators in many states.³⁴ Local workforce boards, which dispense Workforce Investment Act funds, are not fully integrated with local and state economic development efforts. Moreover, the boards oftentimes don't link training to employment in growth industries that offer well-paying jobs.³⁵

This lack of alignment between what employers need and what skills are taught and delivered is becoming a critical problem for business and the nation. The Council sees two fundamental priorities to address this challenge: partnerships between businesses and educational institutions

The lack of alignment between what employers need and what skills are taught has become a critical problem for business and the nation.

that ensure that postsecondary education/training for students and workers meets the demands of the labor market; and data transparency mechanisms that can give employers, education providers, workers and students the tools to effectively align labor demand with supply.

1. Develop partnerships between businesses and postsecondary educational institutions.

To develop clear pathways in education and training linked to workforce needs, employers and educators must collaborate more closely. As an example, Chicago recently announced a Colleges to Careers partnership between employers and colleges to align labor demand with training.³⁶ The program aims to prepare students to work in health care, transportation, distribution and logistics—all sectors in which job openings remain unfilled due to a skills gap. In some cases, the business community has taken on significant leadership in partnerships with educational institutions. P-TECH—a partnership of IBM, the New York City Department of Education and New York colleges—has resulted in a unique K–14 program that prepares students for careers in the IT industry.

Another example of private-sector leadership in establishing such partnerships is Right Skills Now, a Minnesota pilot program that is a partnership involving business, the Manufacturing Institute, ACT and Minnesota colleges to provide candidates with the precision machining manufacturing skills they need through a hands-on and classroom-based 16-week training period.

Skills for America's Future, a policy program of the Aspen Institute, helps align education and training with employer needs by creating a national network of partnerships among employers, labor unions and community colleges to support workforce training and to address the skills gap in key industry sectors. Many of the country's leading businesses and industry associations are committing to

POSTSECONDARY EDUCATION AND LIFELONG LEARNING PRIORITIES

Business

1. Work with educational institutions and training partners to define foundational skills needed in the workforce.
2. Develop tools to enable data transparency and comparability on needs and skills in the labor market.
3. Develop skills credentialing and meaningful assessments in partnership with postsecondary institutions.
4. Partner with postsecondary institutions in curriculum development that meets workforce needs.

The Administration

5. Publish information about skills most needed by employers (e.g., Department of Labor's analysis of occupations for skills-based database).
6. Prioritize challenge grants to consortia of businesses and postsecondary institutions that meet pre-defined targets of job creation and job placement.
7. Provide tax benefits for companies that provide long-term work-based training and conditional employment to displaced workers.
8. Align existing student funding for postsecondary education, including Pell grants, with shorter-term work based training and career and non-degree technical certification programs.

State Governments

9. Implement regional databases of skills demand and supply through partnerships with business technology providers.
10. Realign existing postsecondary funding to meaningful partnership with employers and development of curriculum assessments that meets employer needs.

Educational Institutions

11. Provide students data on post-education outcomes associated with specific majors/programs.
12. Design and implement curricula and assessments that meets the needs of regional employers by partnering with them.

partnerships through Skills for America's Future, including Gap, IBM, McDonald's, Motorola Solutions, Pacific Gas & Electric, Promax BDA, UPS and United Technologies. The Council urges community colleges and firms to expand and enrich such programs through their increased involvement and participation.

The Council also calls on state governments to play a greater role in convening these partnerships. Several U.S. states have established sector partnerships that convene employers, training and education providers and labor organizations in a particular industry to build workforce pipelines.³⁷ In addition to providing seed and implementation grants, state governments can support coordination of stakeholders and enable employers to shape the solutions. Louisiana Economic Development's Fast Start program is a promising example of workforce training coordinated around a broader economic development strategy. The administration can incentivize scaling of these efforts by providing challenge grants to consortia of education institutions and businesses that meet targets for job creation and placements.

Beyond the broad need to address the skills gap and ensure business competitiveness, the Council believes that a special focus on the expansion of lifelong training for displaced workers and underserved populations is an important priority. We know that workforce training that focuses on a particular industry and that provides longer-term training yields better outcomes, especially for low-income adults.³⁸ The administration can boost these and similar efforts by providing tax benefits for companies that provide long-term work-based training and conditional employment to displaced workers, expand the range of firms that qualify for the Department of Labor's apprenticeship program, and increase the scope of Pell grants to cover shorter-term work-based training and non-degree Career and Technical Education certification programs.

Fortunately, in its efforts to bring lifelong training initiatives to scale, the business community has a number of powerful examples from which to learn and build upon.

One example of a successful program that targets just such a population is N Power Technology Service Corps. The program provides qualified young adults with a 22-week technical training course, mentorship by industry professionals and professional internship opportunities, all leading toward IT credentials in high demand nationwide. The program is expanding, and it boasts a greater than 80 percent graduation rate.³⁹

Delta Fast Start is another promising partnership

between Delta College and Michigan Works, a public-private workforce association. The program partners with local solar, chemical and battery manufacturers to retrain workers for jobs in these high-demand industries. Job placement rates for some programs in the network are as high as 89 percent.⁴⁰

Finally, the Council believes the labor market needs a mechanism to develop learning standards based on competencies rather than credit hours. Students should earn credentials for what they know, rather than for how long it took to learn it. This would shorten the path to career readiness while reducing cost to gain on-the-job training.

RIGHT SKILLS NOW: AN UPDATE

Led by Council member Darlene Miller, owner and CEO of Permac Industries, the Jobs Council, in partnership with the Manufacturing Institute, transformed the National Association of Manufacturers-Endorsed Manufacturing Skills Certification System into a nationally replicable fast-track solution to deliver talent to small manufacturers. This accelerated program, called Right Skills Now, allows individuals to earn college credit and national industry certifications in 16 weeks, preparing them for immediate employment in high-quality manufacturing jobs and giving them a solid foundation to advance in higher education and their careers.

Right Skills Now combines nationally portable, industry-based certifications with for-credit education programs in community colleges. These education pathways are directly aligned to career pathways in manufacturing, so students progressing through the programs earn college credit toward a degree, a national certification with labor market value and the hands-on technical experience to be successful on the job from day one. While the initial model focus is on machining skills, for which there is immediate demand, the program can accelerate skills development in other foundational areas for advanced manufacturing, such as production or welding.

In October 2011, Minnesota launched Right Skills Now to support its machining and metal-forming companies, which are desperate for skilled talent and employ out-of-work Minnesotans in good jobs. Darlene Miller is leading a group of Minnesota employers that are working with two Minnesota colleges, Dunwoody College of Technology

and South Central College, the Anoka County Workforce Center and the Resource Employment Action Center to recruit individuals into the Right Skills Now program. The Minnesota program officially started training students in January 2012. Participating individuals are receiving ACT's National Career Readiness Certificates, proving they are ready for work or college, and will obtain several National Institute for Metalworking Skills credentials by the end of the 16-week program. Employers are making arrangements with the colleges to offer full-credit, paid internships to individuals completing Right Skills Now, positioning these students for gainful employment.

Replication of Right Skills Now in other states is under way. In February 2012, Nevada will deploy Right Skills Now with the leadership of Dream It. Do It. Nevada, a 501(c)(3) organization dedicated to creating a highly skilled advanced manufacturing workforce through the attainment of academic degrees and nationally portable, industry-recognized credentials aligned with the NAM-Endorsed Manufacturing Skills Certification System. Right Skills Now Nevada will enroll students at Western Nevada College and Truckee Meadows Community College and is working with more than 20 manufacturers to secure paid internships for individuals completing credentials as part of the 16-week program. As the program launches, Right Skills Now Nevada will focus on recruiting more than 400 National Guard troops coming home in January 2012.

Right Skills Now is an example of how a national education and workforce development reform effort can take root in real communities, with real results, through meaningful and sustainable business-education partnerships.

Furthermore, it would enable employers to identify high-potential employees from nontraditional backgrounds. Business associations and consortia should develop standards of quality for such credentialing, define credentialing requirements and partner with postsecondary institutions.

The Council also calls on postsecondary institutions to build transferability between competency-based credentials and college course credits to provide flexible paths for students to combine classroom and previously learned skills toward either a degree or certification. State governments should partner with the private sector to establish testing/credentialing centers to provide skills credentials for non-traditional educational skills. One promising example of competency-based credentialing is provided by the National Association of Manufacturers, which has developed a manufacturing skills certification system that can be integrated into high school and career and technical education (CTE) curricula. The certification system was designed by and for manufacturers and ensures that students and workers gain the skills required for entry-level positions in manufacturing.

2. Increase data-driven transparency mechanisms to align labor supply with demand.

In order for public-private partnerships to effectively generate employer-driven career pathways, the Council believes that data transparency is critical. Given today's rich world of data and innovative technology, there is no reason why marketers should have better information about their consumers than college administrators do. A recent study by Georgetown University's Center on Education and the Workforce found that college graduates with degrees in the arts, humanities and architecture experienced significantly higher rates of joblessness than those with STEM degrees.⁴¹ While liberal arts skills are highly valuable, many of these students might have made different choices had they seen clear data on the expected demand for degrees upon graduation. Yet such information is rarely made available to students at the time of enrollment.⁴²

The Council urges the business community to take the lead on closing this information gap by creating systems to make data on workforce skills demand and supply readily available. The Department of Labor's O*NET database is a promising step in this direction and defines the skills and knowledge that characterize an occupation, day-to-day aspects of the job, and interests and qualifications of the typical worker. The Council calls on state governments and the Department of Labor to collaborate with the private sector to extend these databases to the regional level.

This information can support partnerships to align curricula with labor demand and increase data transparency in the labor market, all of which can help better align skills demand and supply to create a more purposeful education system. The Council believes that efforts by the administration and state governments to integrate unemployment insurance and workforce training with such efforts will help turn the unemployment system into a re-employment system.

PRE-K-12 EDUCATION PRIORITIES: OUR RECOMMENDATIONS

Every school day, about 7,000 students drop out of school—all of whom are less likely to succeed in the workplace.⁴³ Ensuring more students graduate high school better prepared for either the workforce or postsecondary education is critical for economic growth.

One overarching theme should be stressed from the outset: Our students must graduate with a well-rounded set of skills, including thorough STEM knowledge and skills such as critical thinking and communication. Most jobs require basic technical and scientific knowledge, and professional jobs almost universally demand it. A number of effective public-private efforts to address the U.S. STEM skills gap are worth highlighting. The National Math and Science Initiative, for example, is scaling successful STEM programs; STEMConnector is building a national network; and the National Science Resources Center provides research-based guidance for systems on how to improve science instruction. Foundations and business should continue to invest in researching what works in improving STEM education and supporting organizations with measurable success.

There are four fundamental priorities in this terrain that we believe are critical: Emphasize high-quality preschool; accelerate the adoption of common high standards to guide school curricula; bolster the teaching profession; and ensure that all stakeholders have access to clear information on school performance to allow data-driven improvements in education. We'll take these in turn.

1. Emphasize the importance of preschool to educational success.

Education and training is a lifelong process, beginning in preschool. Unfortunately, math and reading scores for new kindergartners from the bottom of the socioeconomic spectrum are roughly 60% lower than those of students at the

PRE-K-12 EDUCATION PRIORITIES

Business	<ol style="list-style-type: none"> 1. Offer expert support to states and districts as they improve internal functions and resource efficiency in schools. 2. Help communities prepare for lower scores and other implications that can initially come with new higher standards. 3. Develop user-friendly formats for sharing of school and student performance metrics that allow easy comparison.
The Administration	<ol style="list-style-type: none"> 4. Develop and standardize a process for measuring the performance of teacher preparation programs.
State Governments	<ol style="list-style-type: none"> 5. Emphasize high-quality preschool, while ensuring quality control and coordinating efforts to create common preschool standards. 6. Accelerate both the implementation of the assessments and instructional materials linked to Common Core State Standards (CCSS), and the expansion of CCSS into STEM subjects. 7. Form a taskforce led by the National Governors Association and composed of state, local and national leaders to develop common best practices and a Teaching Talent Road Map that defines goals and timelines to have states implementing them to improve the teaching profession through improved professional development, recruiting, preparation, retention and reward structures, informed by global best practice. 8. Link performance of teacher preparation programs to ongoing funding. 9. Rebalance resources to pay effective teachers, particularly in hard-to-staff subjects and schools, competitively with other highly skilled professions. 10. Publish school performance metrics and comparisons in a user friendly format to inform parents and business.
Congress	<ol style="list-style-type: none"> 11. Emphasize high-quality preschool. 12. Reallocate resources to support the work of states in implementing assessments and adopting new instructional materials tied to CCSS.
Educational Institutions/ School Districts	<ol style="list-style-type: none"> 13. Align teacher compensation with teacher contribution to student and school performance, as well as with the need to attract and retain strong teachers in high-need areas such as math and science. 14. Gather data on school and student performance and make it available to parents.

higher end.⁴⁴ Students who are still behind by third grade are more likely to drop out. This gap in kindergarten readiness is in part driven by the fact that one-third of U.S. children do not attend preschool. Research demonstrates that children should be performing at grade level by third grade to ensure future educational success; a key element in achieving this goal is high-quality preschool programs.

Researchers have found that the return on investment for high-quality preschool programs is very high—from \$3 to as many as \$17 returned on every dollar invested.^{45,46}

In addition, high-quality preschool programs can achieve impact at scale. The Abbott preschool programs in New Jersey are producing significant learning gains for children, gains that are being sustained into the elementary years. A higher percentage of fourth-graders now read at grade level in New Jersey than in any other state except for Massachusetts.⁴⁷

States should focus efforts on high-quality preschool access, continue efforts to ensure preschool programs are coordinated and held to higher quality standards, and work to develop common high standards for preschool. With quality preschool, all children can enter kindergarten on a path toward a productive career.

2. Implement high common standards.

Most of our major industrial competitors have comprehensive, consistent standards in education. Research indicates that such standards can account for up to 26% of the variance in student achievement across countries.⁴⁸ Standards in the United States, by contrast, have historically been developed individually by each state, leaving expectations for student learning dependent on where children happen to live. The Council believes that while curricula are rightly implemented by each state, they should be informed by common core standards.

In recent years, states have charted a path toward high common standards, spurred on

by a growing coalition of stakeholders.* The National Governors Association has partnered with other stakeholders to develop the Common Core State Standards (CCSS) in English language arts and in mathematics and related assessments; the CCSS have been adopted by 46 states. The CCSS represent a big step forward toward internationally benchmarked standards that are focused, rigorous and coherent across grades and state lines.

However, assessments aligned to the standards will not be fully rolled out until the 2014–15 school year, and states will likely require time to incorporate those assessments into data systems and instruction. Meanwhile, our industrial competitors often have standards that cover science, history and foreign languages. So, while the Council has nothing but praise and respect for those who've moved the nation this far on standards, we do not believe we should wait until 2020 to have fully implemented standards in just two subjects. The Council believes that states should accelerate the rollout of the standards that exist and speed the development and implementation of standards in additional subjects such as science that are essential for U.S. competitiveness.

To pick up the pace, Congress should prioritize resource allocations that support states in implementing assessments and adopting instructional materials tied to the CCSS. States should accelerate implementation, while business should help states develop and apply quality frameworks to evaluate instructional tools and materials aligned with the CCSS. Finally, the Council urges businesses in each state to lend their functional expertise to support and accelerate the adoption and implementation of the CCSS, as well as assessments and instructional materials aligned to them. Much like the Tennessee SCORE program, businesses can help communities prepare for the lower scores that often temporarily result from higher standards.

3. Bolster the teaching profession.

There is almost universal consensus that effective teaching is the biggest in-school lever for improving student performance. A recent study found that replacing a struggling teacher with an average one would increase that classroom's lifetime earnings by \$266,000. This impact multiplies if those students have strong teachers every year.⁴⁹ Ensuring high teacher effectiveness, particularly in STEM subjects, is the surest way to produce graduates with the skills to compete.

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* The National Governors Association, Council for Chief State School Officers and Council for Great City Schools deserve significant credit here.

Unfortunately, broadly speaking, American education doesn't foster a professional working environment for teachers, doesn't have highly effective teacher preparation, offers too little effective professional development and doesn't pay competitively with other professions. In contrast, top-performing countries have highly selective teacher preparation programs, work hard to foster a professional working environment for teachers and compensate teachers competitively with other professions.

With roughly half of America's 3.5 million teachers eligible to retire in the next decade, we're on the cusp of a unique window of opportunity to transform the profession.⁵⁰ The Council believes that to seize this moment we must focus relentlessly on developing and retaining the most talented teachers in the world.

We believe a coordinated effort to help enhance teaching across America can be a powerful tool to ensure that the U.S. continues to have a highly competitive workforce. The Council suggests that the National Governors Association, with support from the U.S. Department of Education, spearhead a state-local-national task force to develop a road map. That road map should describe best practices, metrics and timelines for states to use in improving the recruiting, preparation, retention, and rewarding of teachers, informed by global best practices.

As part of this work, systems are needed to evaluate teacher preparation programs at the postsecondary level and link these evaluations to accountability systems. The Department of Education, the National Council on Teacher Quality and states like Louisiana and Tennessee are starting to make significant strides on outcome-based accountability. These efforts should be supported and the results made transparent to enable continuous improvement. Additionally, business should support innovative teacher preparation programs such as the Relay Graduate School of Education in order to encourage experimentation. Finally, it is time to compensate teachers at a level and in a way that makes the teaching career competitive with other professions.

4. Achieve data-driven improvements in education.

One of the barriers to improvement for American education has been the lack of clear, broadly available data on just how our schools are doing—the kind of data that would help all stakeholders in the education ecosystem track and manage performance.⁵¹

As business leaders, members of the Council believe it is difficult to manage what isn't measured. If stakeholders

across education have access to clear and comparable performance data, that can help drive systemic improvements. It is critical to develop ways to measure school performance objectively and to compare schools within and across systems. To this end, the Council calls on the business community and state governments to make speedy adoption of both statewide and interstate data linked to the CCSS and assessments a priority. Business can help develop relevant user-friendly metrics and efficient data systems in education just as it has done in the finance and commercial world. We need these data to guide and measure our overall system improvements.

State governments should use this data to publish school performance metrics. Transparent data on school performance can empower parents to drive change if they see their children aren't being prepared for the 21st-century job market, but too many don't understand that this is the reality today. The publication of these metrics should be accompanied by guidance to parents on specific actions they can take to improve their own child's performance, as well as ways to join with other parents to improve school systems overall. Business, the nonprofit community, government and the media can create awareness campaigns

to measurably improve Americans' understanding of the facts about their children's schools and school systems, while hammering home the connection between STEM education and well-paying jobs.

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The Council believes that a widening skills gap is a significant risk to future competitiveness and employment in the United States—but believes that closing that gap and strengthening our future workforce and competitiveness is well within our grasp. It will take broad engagement by students, teachers, school administrators, the business community and government at every level.

As this discussion suggests, there's no one silver bullet that can advance the education and skills agenda that's essential to renewing U.S. competitiveness. But the Council believes that aggressive long-term efforts to move the needle on these big challenges in preschool, K–12 and post-high school learning can build on work already underway to make sure Americans have the skills to flourish in a global age. ★

10,000 ENGINEERS: AN UPDATE

In August 2011, participants at a Jobs and Competitiveness Listening Session at Portland State University discussed the attraction and retention challenge for engineering students in the United States. Only 14% of undergraduates in U.S. postsecondary institutions are studying science, technology, engineering and mathematics. Moreover, after the first year, 40% of those enrolled in these disciplines switch majors. As a result, while overall college-graduation levels have grown by nearly 50% over the past two decades, the annual number of engineering graduates has virtually stagnated at around 120,000.ⁱ

To address this skills challenge, the Council is focused on driving programs that will yield 10,000 more engineering graduates each year. This goal requires a commitment from all U.S. firms that employ engineers. Although systemic education reform is absolutely necessary to long-term competitiveness and sustainability, increasing the retention and graduation rates of students currently enrolled in engineering disciplines can move a long way toward solving the shortage.



A key contributing factor for freshmen who drop engineering as a major is a reduction in motivation stemming from lack of opportunity to apply their classroom learning to “real” engineering opportunities. Consequently, in 2012, the Council will launch a national Stay With It campaign in partnership with academia,

the private sector and the entertainment industry. It will focus on accelerating engineering experiences, providing encouragement, increasing the prestige of engineering and helping students graduate with engineering degrees. The Stay With It campaign will include a national pep rally this spring to inspire students’ enthusiasm for engineering. This unique campus event, broadcast via social and mass media, will celebrate students who have chosen the field of engineering and recognize them as crucial to the future of our nation.



Council member Paul S. Otellini at the Engineering and Innovation Listening & Action Session in Portland, OR.

The Council believes that a critical factor to retaining engineering students is providing them with opportunities that connect their classroom learning with real-world opportunities while providing much-needed financial support. More than 65 companies have already committed to doubling their 2012 summer engineering internships—with Intel, GE and DuPont alone making an overall \$70 million investment in providing students with invaluable hands-on experience. Additionally, engineering deans from some of the nation’s top universities—including Georgia Tech, the University of California at Berkeley and the University of Michigan—have developed gold seal standards of excellence for colleges of engineering focused on improved retention and graduation rates. By providing both direct student engagement and support as well as securing institutional leadership and commitment, the Council will not only focus attention on the importance of engineering student retention and increased graduation rates but also strengthen the nation.

As we move through the new year, the Council welcomes company participation to expand the Day of Engineering to additional campuses; provide support for increased internships; secure funding to support bridge programs and mentoring efforts, both of which are proven and effective methods to improve student retention; and support the national Stay With It campaign by offering to host campus events, support public-service announcements and provide mentors to engineering students.

Innovation

The Council believes that innovation is fundamental to America's future and that the concept of innovation has to be applied broadly to all of our challenges. As a nation we should be pushing at the frontiers of progress with continuous public- and private-sector breakthroughs in products, services, business models and ways to develop our people. In concrete terms, to renew America's leadership in innovation by 2020, the Council calls on the country to boost national investment in R&D to 3.0% of GDP and ideally more; double down on our commitment to developing the most highly innovative workforce in the world and lift the level of new startup business activity well beyond its peak in the early 21st century.

THE CASE FOR COMPETITIVENESS

America is famously a nation of visionaries and builders. It's part of our national character, a trait that has long benefited and captured the imagination of the world. From Thomas Edison (with 1,093 patents to his name) to Edwin Land (553 patents) to the "Google gang" (534 patents to the top 10 patenting employees) and Steve Jobs (who had his name on 313 of Apple's patents), our pantheon of heroes has always included the inventors and entrepreneurs whose mix of curiosity, persistence, drive and know-how has changed the way people live.⁵²

America's track record of innovation includes light bulbs, telephones and integrated circuits, space flight and artificial intelligence, and the latest advances in robotics, nanotechnology, biotechnology, and self-driving vehicles. But it's not just products from the lab. America's creative gene has as often spurred landmark process innovations, from Henry Ford's assembly lines to 21st-century social networking to the everyday improvements front-line workers champion on the factory floor or in the retail store. In all of these venues, America's seemingly endless gift for harnessing ingenuity on behalf of improving our quality of life has been a source of worldwide wonder and national pride.

American innovation has also been key to our competitive advantage. That's because innovation is central to productivity growth and also central to the new technologies and industries that create jobs. Both parts of this observation are critical. Thanks to innovation, the American economy is never static. The activities and ecosystem captured by the word "innovation" continually spawn firms and entire industries. This pattern of innovation has allowed the economy to create new jobs and new professions even as others fade into history. Even industries that seem old-fashioned or craft-like are being transformed every day—just

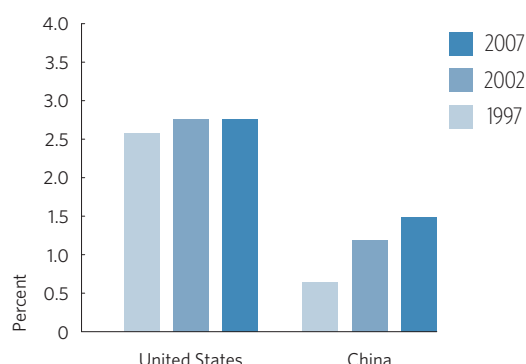
American innovation has also been key to our competitive advantage. That's because innovation is central to productivity growth and also central to the new technologies and industries that create jobs.

visit an offshore drilling rig, a modern operating room, a farm, or a high-tech classroom. Innovation can continue to produce the jobs and income gains of the future, so long as we foster a climate that lets innovation thrive—and ensure that Americans are poised to capture its fruits.

But the context for global innovation has changed radically. Innovation, after all, comes from ideas and the volume of ideas in the world depends on the extent to which human minds are cultivated and tapped. Today, hundreds of millions of minds in emerging nations are for the first time acquiring the skills and schooling that enable them to contribute to our collective store of knowledge. The Internet permits people and ideas in one corner of the globe to collaborate and shape economies anywhere. And geometric advances in computing power—already delivering vast worlds into devices that fit in a palm, and soon inside a blood cell—have extended the frontiers of invention in

R&D Intensity Growth in the U.S. and China

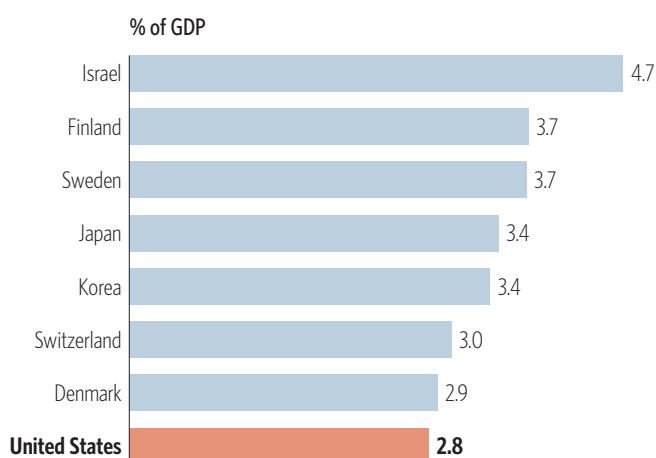
Gross expenditure on R&D as share of GDP, 1997–2007



Source: *The New Geography of Global Innovation*, Sept 2010; OECD

Most R&D-intensive Countries in the OECD

Gross domestic expenditure on R&D, 2008



Source: OECD, Science and technology: Key tables from OECD - ISSN 2075-843X - © OECD 2011

ways we're just beginning to grasp. The upshot: The pace of innovation is accelerating even as the process of innovation evolves in unpredictable new directions. How could it be otherwise when global data flows grew by 50% in 2009, a year in which there were 150 million new Internet users in China alone?⁵³

When rapidly accelerating technologies replace old jobs with new, we have to innovate just to keep up. And we must now continuously innovate just to keep our hold on traditional strengths like sophisticated advanced manufacturing, or to compete in life-enhancing services like education and health care.

Unsurprisingly, as the pace of change quickens and innovation becomes more important to national prosperity, global competition to be the home of the next new thing has intensified. The United States still leads the world in absolute levels of investment in R&D, with more than \$311 billion, or 2.8% of GDP, spent in 2008 across the public and private sectors.⁵⁴ And while lower as a share of GDP than it was in its heyday, America's investment in 2008 was still \$185 billion more than that of China, our closest competitor.^{55*}

That may seem like good news, but such figures shouldn't counsel complacency. Other countries have for years been spending more as a percentage of GDP than we do. Japan and South Korea, for example, both spend six-tenths to seven-tenths of a percentage point more of GDP on R&D yearly.⁵⁶ And in both cases, the private sector takes on a much greater responsibility for R&D, contributing more as a share of R&D than the private sector does here. In total R&D investment, Israel, Finland and Sweden punch above their weight with 3.7 to 4.7% of GDP going to R&D in 2008.⁵⁷ And the trend lines are discouraging. While China has doubled its investment in R&D as a percentage of GDP since 1999 (to 1.7% in 2009), for example, the United States has let such investment stagnate at roughly 2.6% of GDP, until only recently.⁵⁸ What's more, at roughly 0.8% of GDP, federal spending on R&D is far lower than the almost 2% we routinely invested during the glory days of space exploration and the birth of computer science. Constrained budget resources in the years ahead could place further pressure on federal support for R&D.⁵⁹ It is critical that federal R&D support is strong because it supports the basic science that provides the foundation for the commercially oriented applications upon which private-sector R&D focuses. It's this basic science that creates the knowledge breakthroughs that drive transformational changes—and the new technologies, products, industries and jobs that over time flow from them.

RECOMMENDATIONS: SUPERCHARGING AMERICA'S INNOVATIVE CAPACITY

What fuels the innovation that lifts American competitiveness? The blueprint is easy to sketch but devilishly tough for a nation to execute well: investment in R&D; access to capital to turn fresh ideas into new businesses and industries; and a skilled

* All R&D investment figures in this section are in 2000 real dollars.

workforce, with incentives that reward innovation on the front line. Get these big things right and you're halfway home. But to reach the true heights of our potential we must direct our ingenuity toward the greatest challenges of our time.

1. Bolster private R&D through a competitive R&D tax credit, speedy tech transfer and strong IP enforcement.

Meeting this goal will take fresh public- and private-sector commitments. To meet our goal of 3% of GDP invested in R&D, we need to encourage more privately funded R&D and better leverage and target public funds. With more than two-thirds of our R&D spending coming from the private sector, improving the attractiveness of the United States for such investments is a vital place to start. But two-thirds of investment coming from the private sector isn't enough when other countries such as Japan and South Korea substantially invest more than we do as a percentage of GDP and, in addition, get a higher share of R&D from the private sector—78% and 74%, respectively.⁶⁰ As the administration has proposed, we need to expand and extend the R&D tax credit to catch up with the 16 countries that offer more favorable tax treatment for R&D.⁶¹ We don't have to look far for good models: Canada, for instance, offers R&D tax benefits twice as generous as ours.⁶²

At the same time, it's important to remember that bolstering the competitive environment more broadly makes the United States more hospitable to private R&D as well. As noted elsewhere in the Council's report, we therefore need a competitive tax policy that incentivizes innovative companies to locate their R&D, production and employment in the United States; regulatory practices that boost rather than impede innovation; and a talented workforce capable of applying new technologies. To maintain our allure for private-sector innovation, we must also support developing strong innovation ecosystems—like those in Silicon Valley and in the Raleigh-Durham Research Triangle in North Carolina, centered on metropolitan regions, which countries like Singapore and China look to emulate when designing their innovation strategies. The benefits of these ecosystems are tangible for American business and workers. As Thomas Friedman wrote recently, “The best of these ecosystems... [involve] cities and towns that combine a university, an educated populace, a dynamic business community and the fastest broadband connections on earth. These will be the job factories of the future.”⁶³

Many of the underpinnings of this innovation ecosystem were addressed in our Interim Report, such as

cultivating a supportive environment for entrepreneurs and promoting innovation clusters around our world-class universities that permit rapid tech transfer from the lab to the marketplace. But it's worth underscoring why these ecosystems matter.

For example, better access to markets for new technologies through more liberal technology transfer policies makes a real difference. The Massachusetts Institute of Technology's Technology Licensing Office has a standing “1/3, 1/3, 1/3” agreement under which researchers, departments and the school split patent royalties evenly. In combination with the speedy transfer process that can start even before basic research is completed, this arrangement helped MIT garner 153 patents in 2011 alone.⁶⁴ Fast technology transfer can make it possible to sustain a highly productive lab like MIT's Langer Lab, which has launched more than a dozen companies and more than 100 licensing deals.⁶⁵

Another surefire way to encourage more private innovation and R&D is to guarantee private-sector inventors the fruits of their invention. That means strong and coordinated enforcement of intellectual property (IP) protections. Commercial firms innovate for competitive advantage. Theft of intellectual property erodes that competitive advantage and thus erodes the incentive to innovate. It's important that the U.S. government ensures strong U.S. IP protections and aggressively advances fair and transparent IP protection regimes elsewhere in the world. There's more that can be done on this agenda both at home and abroad. We need to make sure the national intellectual property enforcement coordinator has the resources and authority to do the job and improve the training of IP-enforcement personnel at the local, state, national and international levels. Better supply-chain validation both for government and for the private sector—aimed at weeding out counterfeits through new technologies like RFID tracking—can also cut down on some of the more dangerous forms of IP infringement, such as counterfeit drugs.

At the same time, we must make sure that our IP system accomplishes what it's supposed to without inadvertently getting in the way of new ideas. Recent patent system reforms, which will streamline the application process, can help keep wait times from being an impediment. And, it's critical that Congress ensures that fees paid to the U.S. Patent and Trademark Office are available for the agency's work in improving its processes and reducing its backlog. Similarly, creating private-sector research coalitions or government-sponsored research platforms that allow private-sector researchers to collaborate across disciplines

and companies without fear of patent tort or antitrust prosecution would go a long way toward keeping IP protections strong without squashing collaboration.

2. Increase federal support for R&D and innovation, especially in precommercial and basic research, and target a larger share of federal R&D investment toward next-generation challenges.

Federally supported basic research and early-stage demonstrations have been critical to the development of new industries, including satellites, kidney dialysis, advanced prosthetics, biotechnology, supercomputing and even freeze-dried food. In particular, the Department of Defense DARPA agency helped create global positioning satellites, computer-aided design, stealth aircraft, the Internet and even the discipline of computer science. Many of DOD's innovations haven't had direct civilian spillovers, but many have. Similarly, the National Institutes of Health, the largest civilian recipient of basic R&D support in the United States, have developed lifesaving insights, like the importance of controlling blood sugar levels in diabetics, or discoveries that led to promising treatments for breast cancer.

Given the federal government's central role in funding basic research, the prospect of constrained federal budgets in the years to come could put at risk a generation of new ideas. Because the societal benefits of early innovations are far greater than those that accrue to any individual inventor, government has long provided a large share of basic research funding, ranging from 50 to 70% over the years.⁶⁶ In the corporate world, where companies are looking for technology that they can develop directly into products, basic research plays a much smaller role, accounting for less than 20 percent of corporate R&D spending even at its peak.⁶⁷

Given this context, reducing federal support for basic research would be a terrible mistake. The Council endorses President Obama's call for significant new investments in R&D and urges the nation to set an overall R&D investment goal of 3% of GDP or more. We should also consider expanding the role of novel research agencies such as the Department of Energy's new ARPA-E, modeled after DARPA. These innovative agencies stretch our research budgets further (by using new techniques to spur invention) and help make late-stage innovations more successful by targeting them to the needs of a final customer—our nation's energy system and our military, respectively.

3. Ensure entrepreneurs can access financing to scale up their firms through traditional funding methods and new ones.

Next comes access to capital. Capital is the critical fuel that lets breakthrough ideas become the breakaway companies that create the lion's share of net new American jobs. Unfortunately, while the United States continues to have the largest overall venture capital pool in the world (amounting to more than \$21 billion in 2010), it ranks 12th in ease of access to venture capital, behind markets such as Israel, Hong Kong, Norway, Singapore and Malaysia, among others.⁶⁸ What's more, the average annual number of smaller-firm IPOs (of less than \$50 million) has been one-tenth in the 2000s what it was in the 1990s.⁶⁹ Removing regulatory barriers to small IPOs, as well as other Council proposals from our Interim Report aimed at boosting the capital available to small, growing firms (like making permanent the capital gains exemption for investments in qualified small businesses and streamlining access to Small Business Administration programs) needs to become a priority. These steps can go a long way to help innovations reach a broader market and realize their job-creating potential. We're encouraged that bipartisan legislation in response to the Council's recommendations has already been introduced—including a bill sponsored by Senators Mark Warner and Jerry Moran—and we urge Congress to act on it this year.

New financing options can add further firepower to the innovation ecosystem in the United States. Connected platforms now allow entrepreneurs and researchers to tap the wisdom of the crowd by crowdsourcing* ideas. And they allow small-business owners or craftspeople just setting up shop easy access to markets, the way Etsy† does for artisan goods. Through platforms like IndieGoGo and Profinder‡ (which emulate the success Kiva§ has had in raising charitable microfinance funds), entrepreneurs can raise money from the crowd to finance their ventures. Fully leveraging these “crowdfunding” opportunities will require the regulatory changes discussed in our last report, including those that will allow smaller investors to contribute small amounts through crowdfunding platforms.

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* Crowdsourcing and crowdfunding are new techniques, usually enabled by new online platforms and networks, that allow individuals and entrepreneurs to tap the knowledge and resources of many, thereby turning an aggregation of small contributions into significant sums.

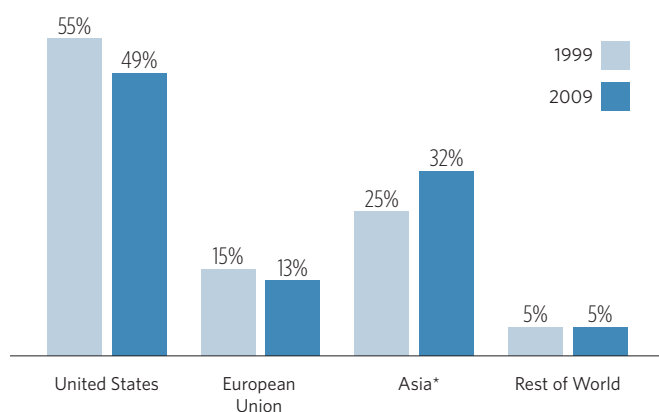
† Etsy is an online marketplace that allows small and artisan producers to market and sell their products to a national community.

‡ Profinder is an online platform that allows business startups to access the wisdom and resources of crowds to perfect their business plans and to raise money toward their ideas.

§ Kiva provides an online platform for social impact and microloans to small entrepreneurs the world over.

Share of U.S. Patents Granted

By region of residence, first-named inventor



The shifting share of U.S. patents toward inventors in Asia.

*Includes patents credited to China and Japan
Source: *The New Geography of Global Innovation*, Sept 2010; U.S. Patent and Trademark Office (USPTO) data

4. Assure our workforce is ready to innovate through education and skills and front-line innovation.

A skilled workforce is the final critical piece of the innovation ecosystem. This means the education agenda we laid out in this report is tightly linked with our innovation agenda as well. It is also time, as we argued in our Interim Report, that Washington ends the reverse brain drain and welcomes highly skilled immigrants who, after getting their degrees in the United States, want to live, build firms and create jobs here in America. Why are we pushing fantastic engineers, programmers and physicists into the arms of our competition when there's a global war on to attract such talent? Countries like Singapore are raising the stakes in this fight—both putting in place comprehensive strategies towards admitting highly-skilled individuals and, in some high profile cases, even promising individual grants as high as \$6 million to woo leading researchers to their shores.⁷⁰ We can't let progress on attracting and retaining high skilled immigrants be thwarted by gridlock on difficult issues when the benefits to our economy are so clear. When fully half of all startups in Silicon Valley were founded by immigrants and one-third of all U.S. Nobel Prize-winners in medicine and physiology were born in other countries, what are we thinking?⁷¹

Our human capital edge won't come just from what takes place in the classroom but from what happens afterward as well; front-line workers are now in the vanguard. As

business leaders, we call on our colleagues to find fresh ways to unlock the creative potential of all of our employees. Providing them with the incentives, platforms and freedom to innovate is a critical new source of competitive advantage. Google famously provides its staff with dedicated innovation time, for example—and valuable insights like Gmail's new email recovery system emerged from such work. Similarly, Toyota's lean process improvements would be impossible without its culture of innovation or respect for ideas from the shop floor. And Cisco has used its Networking Academy not only to help train its employees in the technological foundations of innovation, but also to train other workers in innovative areas like broadband technology, network security and health care.

5. Target more of our R&D investments, both public and private, to some of our greatest challenges—like affordable delivery of high-quality education and health care.

Just as innovation has the potential to create whole new industries, it also has the ability to help us rethink seemingly intractable problems—if we turn our innovative lens to the issues that matter most.

A few facts may help drive this point home. Our national shortfall in college graduates means we need to lift the number of postsecondary degrees we award each year. But to do so without breaking the bank (via today's outsized per-degree costs), we'll need to innovate the way we do things, particularly in how we deliver instruction. By one estimate, to get the additional million postsecondary degrees our workforce needs each year by 2020 without increasing spending or compromising on quality, we'll need to boost the productivity of our higher education system by 23%—gains that are achievable based on the practices of high-performing colleges today.⁷² Similarly, as 76 million baby boomers retire, we need to find cost-effective ways to deliver health care that boost quality while preserving America's ability to invest in the future.⁷³ When we're spending 17% of GDP on health care without better outcomes than other advanced nations that spend 10 or 11%, efforts to achieve these savings must be a priority.⁷⁴

Fortunately, there are no limits to the potential innovations that can take us in the right direction. The Khan Academy, for example, took an insight known to every math teacher—that “practice, practice, practice” is the secret to success in math—and created a tool that delivers high-quality lectures at home so teachers can spend classroom time on the more essential practice. Care management innovations in

Camden, N. J., have lowered costs for serving chronically ill patients while improving their health. Endless breakthroughs along these lines are waiting to be discovered.

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In the end, when it comes to innovation, America remains blessed with advantages built up over decades that other nations would find hard to duplicate through spending or training alone. Our unparalleled workforce flexibility allows new ideas and ventures to quickly find

the talent they need to grow. Our freedom to speak and our freedom to fail—both of which are too often taken for granted—make it safer here than in most societies to push disruptive ideas and new ventures. These fundamental values, which serve as the bedrock of our dynamic culture, make America a nation born to innovate. As long as we renew our commitment to invest in innovation and tend to the people and ecosystems that drive new ideas, America's imagination can continue to propel the world while helping sustain prosperity at home. ★

HIGH-GROWTH ENTERPRISES: AN UPDATE

At the October 2011 Jobs Council meeting in Pittsburgh, the Council issued a series of recommendations aimed at jump-starting American job creation by improving the environment for entrepreneurs to start high-growth businesses and expand existing firms. The cornerstone of the Council's proposals was a recommendation that Congress pass and the President sign legislation to increase U.S. global competitiveness and spur job growth through three policy changes: ensure that the United States wins the global competition for the most promising foreign-born entrepreneurs and innovators; increase access to capital for early- and later-stage companies; and reduce regulatory barriers and provide financial incentives for more businesses to go public.

Public-Sector Action

To urge action and build bipartisan support for a legislative solution, Council member Steve Case launched an effort to build momentum around the importance of entrepreneurship, including reaching out to Republican and Democratic leaders in the Senate and the House. Considerable legislative progress has been made and a real opportunity exists to pass sensible, bipartisan legislation.

Of special note is the Startup Act (S. 1965,) introduced by Senators Mark Warner of Virginia and Jerry Moran of Kansas. The Startup Act would make permanent the 100% exclusion on capital gains for equity purchased in a qualified small business and held for five years as well as provide a 100% exclusion from corporate income tax for qualified small businesses during their first taxable year of profit, followed by a 50% exclusion on the subsequent two

years of profit. The Startup Act would also create a STEM visa for as many as 50,000 foreign students who graduate from an accredited U.S. university with a master's degree or Ph.D. in science, technology, engineering or mathematics and an entrepreneur's visa for up to 75,000 immigrants who register a business and employ at least one non-family member within a year of obtaining the visa.

Private-Sector Action

Along with Congress and the executive branch, the private sector, especially large corporations, has a unique and critical role to play in supporting entrepreneurs and spurring job-creating, high-growth business in the United States. That's why the Startup America Partnership, led by Steve Case, was launched in January 2011 to mobilize the private sector to dramatically increase the prevalence and success of high-growth enterprises in the United States. The partnership has achieved considerable success on behalf of America's entrepreneurs. It has:

- Secured more than \$1 billion in products, services and resources for startups from more than 40 companies.
- Opened a web portal with robust resources and a clear process for startups anywhere to become Startup America firms and access the resources that have been committed from partners. There will be 100,000 Startup America firms by the end of 2012.
- Launched seven Startup Regions that mirror the national public-private model on a local level and are helping to build regional ecosystems.
- Launched the Startup-Corporate Connection Program, which facilitates interaction between startups and large corporations, assists startups with talent acquisition and helps young firms expand into international markets.

BUILD ON
OUR STRENGTHS

Energy

Every business leader knows the basic principles of risk management: Diversify your portfolio and reduce your exposure to unacceptable outcomes. America must do likewise. An all-in approach is imperative if we hope to reduce our reliance on foreign oil and create a more diverse electricity generation portfolio. We need innovative, affordable and reliable energy solutions for the 21st century, a set of investments that will meet our energy needs today while creating job opportunities and economic prosperity for our future.

The Council's recommendations for energy policy, which reflect current policy discussions in Congress and within the administration, are aimed to achieve energy resilience and diversity. America needs to: optimize use of all of its natural resources while protecting public health and the environment; support efficiency measures in both electricity generation and transportation; and drive energy innovation and investment from basic invention to industry scale-up.

THE CASE FOR COMPETITIVENESS

Seizing these opportunities won't be easy; we'll have to forge a consensus on safe, affordable and innovative solutions. We'll need to balance public health and environmental concerns with an increase in global demand for energy and reliance on fossil fuels. We'll need to responsibly address uncertainties surrounding profound new opportunities in shale gas and unconventional oil. We'll need to maintain energy affordability and reliability even as low natural gas prices and new regulations force some power plants to retire. And in an era of intensified fiscal pressure on governments, we need to promote major investments in the sector without widening the federal deficit.

The stakes are high. If we don't find our way to an intelligent long-term energy policy framework, America could cede its leadership in energy innovation to competitors like China (which is currently making bigger bets on new energy technologies than the United States). Moreover, it would stall the engine that could become a prime driver of

U.S. jobs and growth in the decades ahead. There are other energy challenges noted in the Council's Interim Report that also need to be met: The permitting process needs to be streamlined, transmission siting reform needs to continue moving forward, and financing needs to be more available to help new technologies scale up.

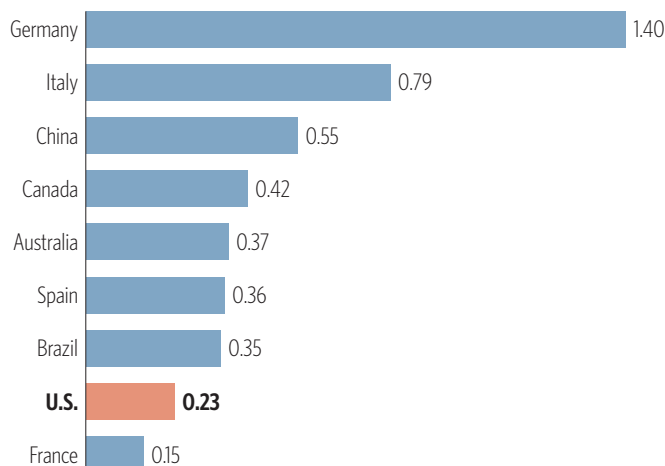
It's no secret that America's energy and transportation sectors rely heavily on fossil fuels. Thankfully, our nation has an abundant supply of natural resources, and recent innovations in drilling have unlocked a century's worth of natural gas supply and enormously increased the production of unconventional oil. Yet, to meet our huge demand for oil, the United States still imports more than 300 million barrels per month, at a cost of over \$1 billion per day.⁷⁵ Our transportation sectors' dependence on oil not only leaves the United States vulnerable to global supply shocks and price fluctuations, but also hampers the economy as we send billions of dollars overseas that might otherwise lift homegrown businesses and domestic growth.⁷⁶

Moreover, the growing global thirst for energy, sparked by 3 billion additional consumers aspiring to middle-class lifestyles, could raise primary energy demand 33% by 2030, according to the McKinsey Global Institute.^{77 78} And while new technologies have unlocked new natural gas and oil supplies domestically, we face a long-term decline in global production from existing, conventional sources of fossil fuels, which will collide with the expected surge in demand from the rise of global middle-class growth. In part, that's why developing nuclear, wind, solar and other renewable energy sources is so important: Planning for future levels of energy demand, transitioning to a low-carbon energy future, and successfully diversifying the electric generation portfolio requires smart energy policies today.

The U.S. utility industry is undergoing a transition as it focuses on reducing emissions while still providing affordable and reliable electricity. In fact, new Clean Air Act rules and low natural gas prices are pushing less efficient power plants to retire early. It will require sizable capital investments in addition to meaningful coordination and

Clean Energy Investment per GDP

Percentage of GDP



Source: Pew Charitable Trusts, *Who's Winning the Clean Energy Race?* 2010 Edition, March 2011

flexibility from industry participants and regulators to keep America's electric system running smoothly.

It will also require cooperation among industry participants, regulators and environmental advocates. Continuing to deliver inexpensive and reliable energy is going to require the United States to optimize all of its natural resources and construct pathways (pipelines, transmission and distribution) to deliver electricity and fuel. The Council recognizes the important safety and environmental concerns surrounding these types of projects, but now more than ever, the jobs and economic and energy security benefits of these energy projects require us to tackle the issues head-on and to expeditiously, though cautiously, move forward on projects that can support hundreds of thousands of jobs. Industry participants also must work with regulators and environmental advocates to implement best practices and develop safety and disaster relief plans that ensure that extraction and pathway projects protect sensitive coastlines, wild and marine life, water supplies and communities. In addition, regulatory and permitting obstacles that could threaten the development of some energy projects negatively impact jobs and weaken our energy infrastructure need to be addressed. Speedy adoption of best practice standards would allow government officials to reduce regulatory and permitting obstacles to important energy projects.

Finally, as we discussed elsewhere in this report, innovation has been a key part of America's competitive advantage and productivity growth. Unfortunately, the government

The growing global thirst for energy, sparked by three billion additional consumers aspiring to middle class lifestyles, could raise primary energy demand 33% by 2030...In part, that's why developing nuclear, wind, solar and other renewable energy sources is so important.

has historically underinvested in energy innovation. And while other countries like China and Germany are stepping up their energy R&D spending, the U.S. budget crisis threatens even current levels of publicly funded energy R&D. Cuts in this area would be terribly shortsighted. Because energy entails huge capital investments in projects that often last decades, utilities have traditionally shied away from making big investments in energy R&D or buying into new technologies. If the United States wants to build an energy infrastructure for the 21st century and remain globally competitive in energy technologies, we need to increase, not decrease, vital public and private investments in energy research, development and deployment.

RECOMMENDATIONS: AN ALL-IN APPROACH

1. Optimize use of all of our natural resources while protecting public health and the environment.

The United States is blessed with an abundance of natural resources. We have a sufficient supply of traditional fossil fuels such as coal, oil and natural gas to provide us with energy for generations to come. Many regions of the country are also rich with one or more diverse sources of clean, low-cost fuels such as wind, solar, geothermal, uranium and hydro resources. This diverse set of onshore and offshore resources combined with technological advances presents an opportunity to develop a broad mix of fuel supplies, reduce our reliance on any single type of fuel, reduce emissions and help limit fuel price fluctuations. And while we believe the United States, as well as the rest of the world, needs to move deliberately and cost-effectively towards

greater proportions of renewable and low carbon forms of energy, we recognize that this will be a long term transition and that traditional forms of fossil energy will continue to be important to our economy as we transition.

As a nation, we need to take advantage of all our natural resources to spur economic growth, create jobs and reduce the country's dependence on foreign oil. First, we should allow more access to oil, natural gas and coal opportunities on federal lands. Where sources of shale natural gas have been uncovered, federal, state and local authorities should encourage its safe and responsible extraction. While the administration has supported holding additional lease sales and evaluating new areas for drilling, further expanding and expediting the domestic production of fossil fuels both offshore and onshore (in conjunction with more electric and natural gas vehicles) will reduce America's reliance on foreign oil and the huge outflow of U.S. dollars this reliance entails. In addition, policies that encourage rapid lease development while emphasizing the highest safety standards will ensure companies responsibly drill for natural gas or oil and mine for coal or other our minerals in federal areas in a timely manner.

And it's not just about fossil fuels. As the largest owner of land in the country, the U.S. government should make more areas available for renewable energy development. Where this country's wind, solar, biomass, hydro and geothermal resources are most ample, federal authorities should make land available to develop energy projects that help diversify the country's electricity generation portfolio. The federal government should also streamline the permitting process, as it did for solar projects in Southern California and in Arizona to promote energy generation with no harmful emissions. Since 2008, the Department of the Interior has approved 25 commercial-scale renewable energy projects on public lands—including solar, hydro, and geothermal projects—more need to come.

The Council recognizes that providing access to more areas for drilling, mining and renewable energy development is controversial, but, given the current economic situation, we believe it's necessary to tap America's assets in a safe and responsible manner. Additionally, policies that facilitate the safe, thoughtful and timely development of pipeline, transmission and distribution projects are necessary to facilitate the delivery of America's fuel and electricity and maintain the reliability of our nation's energy system. Over the long term, we expect that innovation and technological advancements will greatly reduce America's reliance on fossil fuels. Until then, however, we need to be all in.

Thankfully, our nation has an abundant supply of natural resources, and recent innovations in drilling have unlocked a century's worth of natural gas supply and enormously increased the production of unconventional oil.

2. Support efficiency measures in electricity and transportation.

Any energy strategy for the nation would be incomplete if it relied solely on the strengths of our existing supply and the promise of innovations in production. We must reduce our overall energy dependence through bold and achievable efficiency gains. If we pursue this agenda creatively, we'll not only save on energy costs, but also capture an opportunity to lead in emerging efficiency technologies, while creating tens of thousands of new jobs and reducing emissions. To stretch our domestic resources, the United States should continue to promote energy- and fuel-efficiency measures.

There are several proven strategies private- and public-sector players can follow. The private sector, particularly the nation's real estate agents and auditors, has a big part to play by incorporating energy audits into the standard practice for buying, selling and valuing a home and continuing to provide innovative financing options for homeowners undertaking retrofits. For the industrial sector, the Council encourages adoption of energy management best practices—such as empowering companywide energy managers and improving operations and maintenance to reduce energy use—that can greatly reduce the energy intensity of their work. Programs such as the Environmental Protection Agency's (EPA) Energy Star Partnership or the Department of Energy's (DOE) Better Buildings, Better Plants program can help private-sector partners identify opportunities here. Finally, the federal government can incentivize states to adopt increasingly strict efficiency standards for new residential and commercial buildings. All levels of government can encourage home energy testing.

Finally, if we are truly to increase our energy resilience through new sources of supply and energy efficiency, we must address the transportation sector's overdependence on oil. The announced CAFE standard improvements for cars and light trucks, created in partnership with industry and labor, hold real promise. These standards, which by 2025 will be equivalent to 54.5 miles per gallon, could save

consumers more than \$8,000 in fuel costs per vehicle relative to the standards in effect in 2010.⁷⁹ More significantly, by 2025, these new standards could reduce our dependence on oil by 2.2 million barrels per day, equivalent to almost a quarter of our foreign oil imports.⁸⁰ The Council fully endorses the spirit of collaboration that went into the creation of these standards.

We can reduce our dependence on oil even further by promoting alternative vehicle technologies, ranging from fully electric vehicles to hybrids to natural gas and alternative fuels. In the Innovation chapter we discuss the significant role that government procurement can play in scaling the adoption of new technologies, including electric vehicles.

It bears repeating here that both state and federal government agencies should continue (and ideally increase) purchases of electric and hybrid vehicles to support scale-up of these critical technologies; and the military should continue to do the same with advanced energy and vehicle technologies. In addition, government research programs should continue to support advancements in battery and materials technologies and alternative fuels that can give America an edge in advanced technology vehicles. The potential returns on our investments here are significant. Widespread adoption of vehicles powered by electricity, natural gas, and alternative fuels could hasten and make permanent our return to being a net exporter of petroleum.

3. Drive energy innovation and investment from basic invention to industry scale-up.

As discussed in the previous chapter, the importance of innovation to U.S. competitiveness is undeniable. Large investments in defense and health have led to U.S. superiority in developing advanced weapons as well as cures for diseases. Similar levels of focus and investment in R&D are needed today in the energy sector in order to meet America's future energy demands without increasing harmful emissions. Rapidly evolving technologies in areas like natural gas drilling, 21st-century nuclear power, renewable energy, energy storage, coal gasification, electric vehicles, the smart grid and carbon capture, utilization and storage have enormous potential. Together, they can change the face of energy as we know it, boost jobs, economic growth and competitiveness, and improve the environment and public health.

The Council believes we need policies that encourage private companies to invest in R&D and the deployment of new power generation technologies such as wind, solar, advanced nuclear and coal gasification. While game-changing inventions are most likely to come from federal

or joint public-private efforts, sequential and incremental innovations are more likely to come from companies that are involved in the manufacturing or operations of power products—staffed by employees that have been in the industry for decades and have hands-on, practical know-how when it comes to energy systems. Tax provisions that encourage investment in R&D (such as the R&D tax credit) and performance-based tax policies that support the deployment of technology are effective tools for bringing to market the technologies born of R&D and driving deployed technologies to long-term viability. Mobilizing private capital to invest in new power generation technologies and enabling new technologies to reach scale will help encourage further innovation, reduce the costs and increase the efficiency of new technologies while encouraging the construction of new projects that create jobs and economic growth. Making the R&D tax credit permanent and extending production tax credits will also promote the type of innovation and investment America needs to diversify its generation portfolio and prepare for rising levels of energy demand.

Also, increasing the federal government's commitment to and financial investment in energy R&D is vital. The Department of Energy and U.S. universities already have a number of effective programs in place (Advanced Research Projects Agency–Energy, DOE Labs and Energy Innovation Hubs, to name a few) that support basic research and applied R&D. Recent funding for these federal programs has been approximately \$4 billion.⁸¹ Doubling or tripling that amount would be a good investment. Similarly, establishing a Clean Energy Development Administration, as this Council called for in our last report, could help energy start-ups hurdle the financing valley of death. Given the current budget constraints, we understand the difficulty of increasing federal spending, and we encourage the administration to find sensible ways to offset at least a portion of these costs, such as redirecting funds from other energy programs that offer lesser returns.

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The Council believes this all-in strategy for U.S. energy resilience and diversity can bolster growth, jobs and competitiveness even as it lowers emissions and protects the environment. If we optimize America's natural resources, make energy and transportation efficiency a national priority and promote energy innovation and investment, we can fuel the prosperity Americans seek for the coming generation and beyond. ★

Manufacturing

As a nation, we need to go back to the future in manufacturing—and win global share via innovative industries and world-class exports. An ambitious yet achievable goal would be to realize the same gains in market share in terms of global value added that we did in the 1990s, meaning we'd gain 3 to 4 percentage points of manufacturing value-added market share.* To realize this goal, we'll need to get small manufacturers to boost their exports substantially. We'll need to take steps to make sure next-generation innovative manufacturing industries are not only invented here but scale up and do their production in the United States as well. In addition (as discussed in the education chapter and in the Council's Interim Report), we'll need to improve our education and training so we have the most highly skilled advanced manufacturing workforce in the world by 2020.

THE CASE FOR COMPETITIVENESS

Let us be clear up front: Manufacturing matters. There was a time a few years back when conventional wisdom in the United States held that it didn't make much difference if America made silicon chips or potato chips. This Council is not agnostic. To be sure, "the rise of the rest" may make it harder for the United States (and Germany, for that matter) to retain the same levels of employment and the same share of global output from manufacturing as we did in the heyday of Western industrial production in the middle of the 20th century. But there's still an indispensable link between the health of our manufacturing sector and national prosperity.

In 1980, manufacturing accounted for 20% of American jobs; today, the 11 million or so jobs in the sector represent roughly 9% of overall employment.⁸² Germany, often touted as doing a better job at manufacturing, has also experienced significant declines, but from a higher base: from 34% of jobs in 1980 to 20% today.⁸³

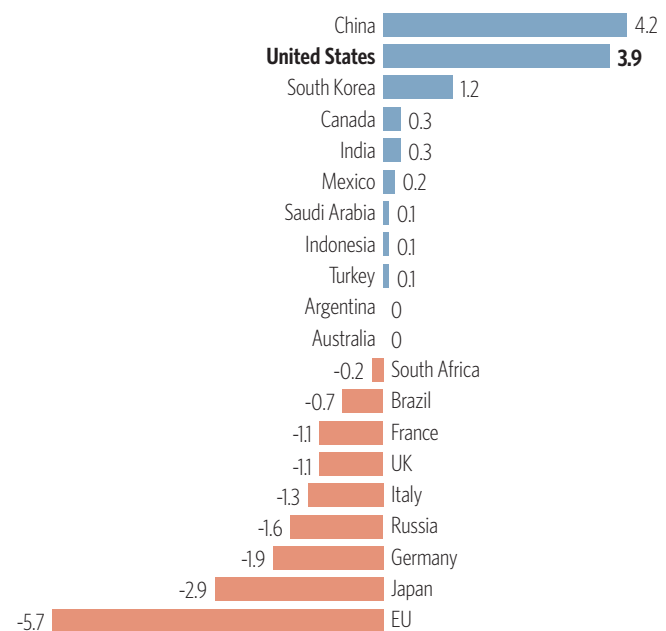
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* Between 1990 to 2000, the United States experienced a strong manufacturing value added share gain: 3.9 percentage points according to IHS Global Insight Data, and 3.8, according to the OECD.

Why the drop? After the 1960s and 1970s, developed countries experienced an economic and employment transition from industry to services. As the economist Alan Blinder has noted, this was driven by three main factors.⁸⁴ Rising productivity due to innovation in the manufacturing sector let firms produce a lot more goods with a lot less labor. Consumer tastes changed as well: As societies grow richer, people like to spend relatively more of what they earn on services (think travel or dining out) and relatively less on goods (e.g., shoes and appliances). Finally, as other nations industrialized, trade grew: Americans import a far bigger share of manufactured goods than we did a half-century ago.

Even facing these headwinds, the United States gained substantial market share in terms of global manufacturing

Manufacturing share gains in the 1990s

Point change in manufacturing value-added share, 1990–2000



Source: IHS Global Insight Data/Insight Web; Global Real Manufacturing Value Added

value add and output in the 1990s. And even though manufacturing's share of employment was dropping, the number of jobs in the sector held roughly steady between 1980 and 2000, at around 18 to 19 million.⁸⁵

But the period since 2000 has seen painful setbacks. The sector suffered a serious one-two punch: first, shedding 3 million manufacturing jobs after the 2001 recession and then when oil and gas prices spiked; and second, in the recent recession, when 2 million jobs were lost.⁸⁶ There was also steady job erosion in between. Rapid productivity gains and foreign competition (especially from China) were the main culprits. "Competition from overseas helped spur U.S. firms to boost productivity," a Congressional Budget Office report concluded in 2008, "but that competition has also dampened demand for goods produced in the United States, despite domestic manufacturers' efforts to reduce costs through productivity enhancements."⁸⁷

The Council believes these recent trends can be reversed. But before describing how we can turn the tide, it's important to remember why manufacturing is so important to the economy.

Manufacturing breeds innovation

The complacent-about-manufacturing line goes something like this: Yes, it's a shame we've lost many of these traditional jobs and sectors, but in a global economy it's inevitable that lower-value assembly work will gravitate toward lower-paid workers in less-developed countries. That's their path to a better life. Better that we focus on "knowledge work"—the higher-value, better-paid work that cutting-edge research will spawn. So long as we're doing the high-end stuff in America, we'll be fine.

There's only one problem with this logic: As a growing number of observers point out, you can't keep the innovation in America unless you keep the manufacturing here, too. Because the next wave of product innovation comes from the experience you get by manufacturing. That's what tinkering and continuous improvement are all about: It's the process of actually making things that leads to ideas for how to make them better, or faster, or lighter, or for slightly different purposes, or in ways more useful to customers. As Gary Pisano and Willy Shih showed in a seminal piece in the *Harvard Business Review*, such complacency has already cost America leadership in such important new industries as lithium batteries, liquid crystal displays (LCDs) and consumer-networking hardware. When what Pisano and Shih call the "industrial commons" moves overseas—that interwoven network of production, design and research

You can't keep the innovation in America unless you keep the manufacturing here, too.

expertise—so does the innovation.⁸⁸ So even if the original new product is invented in the United States, the next wave of products gets developed and produced elsewhere. Because of this development, U.S.-based companies now perform a fifth of their R&D offshore. That figure will only grow if we allow manufacturing to continue to decline.

"How could the United States have forgotten?" asks Andy Grove, the former chief executive of Intel. "The answer has to do with a general undervaluing of manufacturing—the idea that as long as 'knowledge work' stays in the United States, it doesn't matter what happens to factory jobs." But without scaling production within the United States, Grove says, "we don't just lose jobs—we lose our hold on new technologies. Losing the ability to scale will ultimately damage our capacity to innovate."⁸⁹

Manufacturing bolsters the middle class

In previous decades, manufacturing paved a reliable path to the middle class even for Americans without post-secondary educations. Manufacturing now depends as much on skills as brawn. But even with global competition, manufacturing jobs still pay 20% more on average than jobs in the wider economy.⁹⁰ That's true whether we're talking about the machinist on the factory floor or the engineer in the design lab.

Manufacturing is uniquely reliant on large numbers of engineering and R&D personnel. Indeed, with roughly 9% of the jobs, the sector employs 36% of the nation's engineers.^{91 92} This means there are an outsized number of good-paying skilled jobs supported by a robust manufacturing sector. Beyond this, with a high school degree, a manufacturing employee still makes roughly \$3,000 more annually than the average high school graduate.⁹³ The same is true for manufacturing employees with four-year college degrees, who earn \$13,800 more on average than their peers in other sectors.⁹⁴ In addition, manufacturing creates an unusual number of high-paying jobs in other sectors. Motor vehicle manufacturing, for example, creates 8.6 indirect jobs for each direct job; computer manufacturing,

5.6; and steel product manufacturing, 10.3 jobs in the surrounding economy for suppliers, maintenance and other service providers, engineers, restaurants and hotels. Seen this way, manufacturing is a middle-class multiplier.⁹⁵

Manufacturing helps macroeconomic stability

Manufacturing exports should also play a crucial role in restoring the U.S. trade balance, with associated benefits for economic stability and wealth creation. As Dan Alpert, Robert Hockett and Nouriel Roubini document in their report *The Way Forward*, the Great Recession was in part the product of a credit bubble fueled by too much consumption and too little production here, and the inverse abroad. At the height of the bubble, the United States' current account deficit reached 6% of GDP, up from an average of 1.6% in the 1990s.⁹⁶ Boosting exports via more competitive manufacturing is a first step to bringing what we consume back in line with what we produce, with benefits for national prosperity and the fundamentals of economic stability.

Manufacturing bolsters national security

Finally, America can never risk becoming so dependent on foreign production that we lose the ability to make what we need to defend the country and our interests abroad. That means retaining and bolstering a robust advanced manufacturing capability in such key industries as airplanes, automobiles and biologics.

THE CASE FOR A BRIGHTER FUTURE

There's reason to be bullish about manufacturing in America, starting with the changing economics of outsourcing. Wages are rising in Asia's dominant manufacturing hub, with wages in China projected to rise 18% annually over the next five years.⁹⁷ Even in more developed manufacturing locations, wage inflation combined with strengthening currencies have raised compensation costs. For example, due to currency and wage effects, South Korea's manufacturing wages rose 14.5% and Singapore's 9% between 2009 and 2010.⁹⁸ For high-skill or high-demand occupations such as engineers or managers, wages are soaring even faster. Other factor costs are also on the rise. Industrial rents surged in Indonesia and China at 22% and 16%, respectively, in the past year.⁹⁹

The underlying costs of shipping to the other side of the world are also increasing, and these spikes may be permanent. For instance, the real cost of a barrel of oil in 2009 was

620% higher than it was in 1970 and 160% higher than in 1990.¹⁰⁰ To be sure, some firms will look at these new economics and move to the next set of low-cost countries in search of another decade of cheap labor production before the cycle repeats. And some firms, such as Foxconn (a large Chinese employer), may start to mechanize and replace the very low-cost labor that made Asia so attractive. But other companies, particularly in the capital-intensive and innovation-heavy sectors where we're poised for a resurgence, may start to question the continued wisdom of going offshore. (Notable examples of "returning" manufacturing already exist: Caterpillar is opening a new plant that will triple its excavating capacity in the United States, and Ford is repatriating 2,000 jobs from China and other countries.)¹⁰¹

At the same time, it's not just a matter of rising costs abroad, but also of strengths at home. There's a reason Europe provides 78% of the manufacturing foreign direct investment in the United States.¹⁰² And that Japan has invested \$80 billion in manufacturing here.¹⁰³ Or Germany, \$70 billion.¹⁰⁴ Our mature, developed infrastructure (even if no longer the best among our peers) and our savvy supplier base let firms speedily meet demand in an era of shrinking cycle times.

It has not gone unnoticed, for example, that you can reach Europe by ocean in a third the time from Dallas as you can from Beijing. Speed and customization are more important than ever, with new technologies such as 3D printing opening doors to batches as small as a single unit.

In addition, despite rightful worries about trends in U.S. schooling and skills, America still boasts one of the most productive manufacturing workforces in the world, with more than a quarter of the world's college-degree holders (and they're 9% more productive, by some measures, than even Germany's storied workforce).^{105, 106} In addition, even with today's huge backlogs at the patent office, our legal regime for intellectual property protection remains unrivaled, leading one in two global executives to say they expect to increase IP-intensive product development in the United States.¹⁰⁷ Given that IP is increasingly where manufacturers make money in a commoditizing world, our superior legal protections make a strong case for choosing America. And, of late, our low-cost energy advantage makes the United States a natural for energy- and feedstock-intensive production as well.

So where do we think a manufacturing renaissance is most likely? For starters, industries where we've always been highly competitive, thanks to an early technology lead (in aviation, "early" means 1903), the strength of

our industry clusters and the speed and reliability of our infrastructure for reaching customers and suppliers—like in transportation equipment, heavy machinery and other bulky goods. The United States had a 19.3% share of worldwide manufacturing value added as a whole in 2009,¹⁰⁸ but in transportation equipment we led the world with 35% of value added.¹⁰⁹

It's tempting to call these sectors “old faithfuls,” but part of what keeps many of them in the United States is that they, too, are highly innovative—with new cars, for instance, functioning like computers on wheels. Elsewhere, in food and commodities processing, the strength of our resource base and our agricultural sector anchor production here. These are sectors where our traditional strengths create a natural edge so long as we sustain them.

We can win in other sectors as well. Some—such as energy- and feedstock-intensive manufacturing as well as chemicals and related materials—are already expanding in the United States because breakthroughs in shale gas production have dramatically lowered the cost of producing in the United States. In other emerging sectors the challenge may be greater, as other nations work aggressively to best us in highly innovative advanced manufacturing. Take these in turn.

Thanks to shale gas, the United States now has the lowest-cost natural gas in the world outside of the Middle East, translating into low-cost energy feed stocks. That's a huge advantage for energy-intensive producers, such as chemical manufacturers, that use energy both to power their plants and as a basic feedstock for production. Energy costs make up 41% of the cost structure of a chemical manufacturer like Dow Chemical, for example.¹¹⁰ So it's no wonder that new chemical plants are in the works across the country, including Dow Chemical's ethylene plant on the Gulf Coast, its first since 1995, and Shell's announced ethylene cracker outside Pittsburgh. Keeping our energy costs low will be essential to keeping or expanding this production here.

Innovative industries are an area where we're accustomed to winning. We've built an impressive ecosystem to do it, with nonfederal entities spending more than \$169 billion on manufacturing R&D in 2007, more than the entire R&D spending of China or Japan.¹¹¹ The results—25% more semiconductor patents than Japan and 53% more than the rest of Asia in 2008, or a 30% share of global semiconductor value added—are obviously a plus.¹¹² But other countries are rapidly increasing their R&D investments and, as discussed in the innovation chapter, we need to lift our national investment in response.

It should be noted that we simply aren't likely to do well in some sectors, barring big increases in transportation costs or instability to our south. These sectors include labor-intensive commodities such as toys, textiles and commoditized electronics. With rising transportation costs, these could become candidates for near-shoring to Mexico or Panama, but production will basically keep heading where labor is cheapest—whether in today's low-cost countries or tomorrow's. That's not America, nor should we want it to be.

RECOMMENDATIONS

So what's the way forward? The Council believes we can make more of the right things in America again and raise our global value added share, if we renew our traditional strengths while taking more aggressive measures in key sectors to take share from global competitors. Our key recommendations follow.

1. Address key barriers to competitiveness in the areas of skills, regulation, tax and infrastructure.

The manufacturing sector is a bellwether for America's standing as a whole, which means we can't expect to keep manufacturing here if we don't bolster our competitiveness more broadly. As long as our regulatory and tax competitiveness lags the best of our peers, we have a problem. When a global manufacturer like Siemens says 3,000 positions in the United States are going unfilled because it can't find Americans with the right skills to do the work, we have a problem.¹¹³ And while Siemens has the resources and the determination to train the workers it needs here, not every manufacturer does and not every manufacturer will. Similarly, if manufacturers have to pay 13% of payroll for health benefits here, while paying only 7% in Germany and 4% in Japan, we have a problem.¹¹⁴ And if we keep getting a “D” or lower on our infrastructure report card—because we've failed to invest in maintaining or upgrading the infrastructure that gets our goods to market—well, before long, we'll have even bigger problems.¹¹⁵

For these and related challenges there are a number of solutions proposed in this report and the Council's Interim Report, which together frame a long-term approach to building our competitiveness. For instance, our recommendations in the Interim Report on accelerating infrastructure investment can help manufacturers reach customers. Our common-sense ideas to improve the regulatory process can

make opening or expanding shop in America much easier. In the education and skills chapter we offer proposals to ensure our students and workers have the skills they'll need. Finally, building on the work of other blue-ribbon panels, we lay out principles for getting to a more competitive tax code.

2. Reform export controls to help small manufacturers dramatically boost exports and to spur local manufacturing cluster development.

If we are to truly renew manufacturing, we need to win at the local level even as we compete more ambitiously in the global market.

The export-jobs nexus is a matter of math. Given that the rate of productivity growth in manufacturing has outstripped growth in domestic demand for manufactured goods, we simply have to grow exports to boost manufacturing employment. Thoughtful reform of our export controls—to balance necessary protections for military technologies with export opportunities for our manufacturers—would help encourage high-tech exports. The President's Export Control Reform Initiative is a good start. Similarly, we can take a page from Germany's playbook

Small and medium-sized businesses—in other words, 99% of U.S. manufacturers—contribute just 20% of manufacturing exports despite producing 40% of the sector's output.

and do much more to help smaller manufacturers reach foreign markets. Small and medium-sized businesses—in other words, 99% of U.S. manufacturers—contribute just 20% of manufacturing exports despite producing 40% of the sector's output.¹¹⁶ Leveraging the Manufacturing Extension Partnership* to further support SMEs in their export

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* With more than 1,300 technical experts and centers in every state, the Hollings Manufacturing Extension Partnership assists small and medium-sized manufacturers in applying technology and innovations to their business to create opportunities, including improving operations, developing innovation and leveraging new technologies.

CONTROLLING HEALTH-CARE COSTS CAN BOOST MANUFACTURING COMPETITIVENESS

Gaining control of our nation's health-care costs while improving the quality of our health outcomes is a competitiveness challenge for the private and public sectors alike. Across the country, business, government and health-care providers are leveraging innovation to treat the symptoms of this challenge and cure its underlying causes.

The Cincinnati Regional Health Transformation, a collaborative effort led by community leaders, health providers and employers, has raised the number of primary-care practices in the region with patient-centered medical home certifications from zero in the spring of 2010 to 80 today and more than 100 expected in early 2012. At the same time, the transformation team rolled out cost-saving electronic medical records through its HealthBridge centralized medical exchange. This same team is putting its ingenuity behind payment reform—anticipating more than \$1 billion in health-care savings by 2014.ⁱⁱ

CareMore has spearheaded another promising experiment in innovation with its coordinated care model for the elderly. It has lowered overall costs by 18% while achieving terrific results in its network of 26 centers in the Southwest—including a diabetic amputation rate 60% lower than average and a hospitalization rate 24% lower than average.ⁱⁱⁱ Part of its success: proactively caring for the patient rather than treating diseases one by one.

Getting these innovations right could point the way to the future of health care delivery in this country. If the United States could meet the same performance standards as other developed countries, we could see 91,000 fewer premature deaths annually; 66 million more adults receiving recommended levels of preventive care; up to \$3.1 billion a year in savings from improved control of diabetes and blood pressure; and \$114 billion saved per year from lower health insurance administration costs.^{iv} This is not to mention the billions potentially shaved off the federal budget if Medicare spending growth slowed. These are some steep benefits—both in dollars and in lives.

efforts, including expanding its ExporTech program, would be a promising beginning. And there are other successful programs on which we can build. For example, North Carolina's Small Business and Technology Development Center provides comprehensive coaching and support on entering foreign markets. Similarly, the State Trade and Export Promotion (STEP) pilots underway should be mined for successful ideas to get small manufacturers exporting. If Germany can close the small-firm export gap, so can we.

And it's not just about winning globally; we have to win locally as well. When a manufacturer chooses to locate in the United States, it is choosing a specific location—places like Spartanburg, S.C., say, or Wichita, Kan., which have been successful in winning automobile production from BMW and R&D activities from Airbus, respectively. National competitiveness is not sufficient if we cannot make “competitiveness” translate very tangibly at a local level. The United States should therefore leverage its many strong industry clusters to attract investment and jobs in manufacturing. Researchers at the Brookings Institution, as well as other analysts, have identified what such an agenda might look like.¹¹⁷ So have many states.

One way governments can better leverage their economic development funding would be by issuing challenges to communities. The Council proposes a national challenge in this vein to identify and deepen the position of clusters where we have the potential for a manufacturing edge. As part of this challenge, we would develop a national gold standard of what it takes to excel at the local level—learning from those clusters that have done just that. We should target incentive funding to those states and localities best prepared to make improvements in their workforce or their infrastructure to meet that standard.

3. Sharpen our edge in the industries we can win by maintaining our energy advantage, supporting the scale-up of nascent industries and competing more aggressively for capital-intensive industries.

Finally, we should go to special lengths to win those manufacturing sectors up for grabs—by maintaining our energy advantage (as discussed elsewhere in this report), supporting the scale-up here of nascent industries, and competing flat out for capital-intensive manufacturing.

What does that mean exactly? To capture new industries, there must be strategies to encourage them from startup to scale-up—something at which some other countries do a better job today. There is a range of ways to do this, from proving technologies outside the lab to easing the way for manufacturers to get off the ground.

Production often goes where initial scale is achieved, so these early moves can have lasting impact. As a start, government grants and pilots can help provide “proof points” for new technologies—as the Department of Energy is already doing with some cutting-edge forms of advanced batteries, like the ones helping drive the manufacturing recovery in Michigan. When new technologies are proven, far more customers are willing to buy them. We should be asking what these proof points might look like in robotics, nanotech, advanced materials and biotech, and how such demonstrations can help. And like the Advanced Manufacturing Partnership—a coalition of universities, manufacturers and public-sector leaders led by Andrew Liveris, CEO of Dow and Susan Hockfield, president of MIT—we must build our scientific and research capabilities in these critical areas.¹¹⁸

Second, as we discussed in our last report and in this report's chapter on innovation, there's a lot we can do both within the private sector and through government action to smooth the road for innovative startups, including in manufacturing. Initiatives to ease the financing gap for high-growth entrepreneurs (through programs like Small Business Innovation Research/Small Business Technology Transfer, or SBIR/STTR) and to connect small firms with larger supply chains can help manufacturers and industries get started here.

Other countries have targeted promising sectors that are up for grabs and devised aggressive strategies to capture the market. The question is how America responds.

For example, recognizing that many advanced manufacturing facilities are highly capital intensive, countries like Japan, Germany and China have provided federal-level tax credits, subsidies and financing assistance to help offset the cost of starting a factory. While some of our states do this, there's not an effective national response to these challenges. The United States must do more to attract advanced manufacturing inward investment, especially given the strategic focus other countries are placing on sectors they feel they must win—such as biotechnology, solar panels and high-speed rail.

There are other ways we can win these sectors without dipping our toes into industrial policy. It's worth underscoring the Council's agenda to bolster workforce skills in

this regard (detailed ideas can be found in the education and skills chapter). That's because there are growing skills gaps we must close if we are to win these key sectors. For instance, with the increasing integration of software into manufactured products, we face a shortage of software engineers and a growing need for mechatronics* graduates. And we'll have a tougher time attracting advanced manufacturers if we don't replenish our graying workforce of precision machinists and engineers as they retire.

To close these gaps, the private sector should expand its efforts, using the Council's 10,000 Engineers Initiative as a model. Efforts like these—which recognize that the engineering gap is as much a retention problem as it is a

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* Mechatronics is a specialty that combines system design principles, an understanding of electronic controls and precision mechanical engineering into one discipline.

recruitment challenge—take targeted steps, including internships, publicizing the engineering profession and providing performance-based retention scholarships to keep engineering students on track to graduate. And maybe it shouldn't be just 10,000 engineers but 10,000 software engineers and 10,000 advanced materials engineers, as well. Universities and research institutions can do their part by resurrecting the manufacturing institutes, labs and undergraduate programs that flourished in the past. The University of Michigan's Industrial and Manufacturing Systems Engineering program has partnerships with various manufacturers for education and research, include Boeing, Ford and Hyundai. We also need to scale up efforts like the National Association of Manufacturers' Right Skills Now program, which provides workers with nationally portable, industry-recognized certifications in partnership with educational institutions.

WINNING IN MANUFACTURING

Many states have streamlined permitting and developed innovative best practices to attract manufacturers. States with access to industry clusters, workforce talent and 21st-century infrastructure have been successful luring billion-dollar manufacturing investments that create jobs and economic growth.

Winning Foreign Direct Investment (South Carolina)

BMW opened its only full manufacturing facility outside Germany^v in Spartanburg, S.C., in 1994. In addition to nearby access to the engineering talent graduating from Clemson University and the strong transportation infrastructure of Interstate 85 and the Port of Charleston, BMW had a partnership with Governor Carroll Campbell's team and the South Carolina Ports Authority that enabled it to find what it needed to set up shop and grow in South Carolina—including rapid permitting allowing the fastest plant startup in history, a committed talent development pipeline through community colleges, attractive tax incentives and a major port expansion to help exported vehicles reach more than 100 countries.^{vi} With an overall

\$5 billion investment and a plant workforce totaling more than 7,000, BMW is making South Carolina its second home in a big way.^{vii}

Winning Industries of the Future (Michigan)

To lure a new generation of clean tech manufacturing, Governor Jennifer Granholm and her administration leveraged the state's strong auto parts suppliers in 2008 to attract clean-energy manufacturing value chains. For example, recognizing that many auto suppliers could make parts for wind turbines but lacked a foundry, they recruited URV, a Swiss-Swedish foundry operator, to the state. The state also created 13 Centers of Energy Excellence to speed energy-tech transfer and leveraged Department of Energy grants to provide location incentives. To make it easier for manufacturers to set up shop, Michigan streamlined regulatory processes, including its environmental permitting. Finally, to ensure that manufacturers would find strong demand, the state created a renewable energy portfolio standard. As a result of its efforts, in two years Michigan attracted 159 clean-energy companies, 90,000 planned jobs and \$9.4 billion in committed investment.^{viii}

In those areas of manufacturing we agree are critical, we should ensure that our regulatory processes are fast, transparent and aimed at getting products into production quickly (even as they protect our people). Some countries, like Germany (through its Germany Trade and Invest FDI promotion efforts), help manufacturers setting up shop to find the workforce they need and navigate regulatory hurdles. We should develop similar innovative location-assistance programs to attract FDI here.

BACK TO THE FUTURE

How do we know that if we get the equation right on manufacturing we can win back global market share? Because we've done it before. And not so long ago.

During the 1990s, the United States gained 3.9 percentage points of share in global manufacturing value added.¹¹⁹ In the decade that saw the birth of the Internet and widespread adoption of the personal computer, U.S. manufacturing not only increased its share of global manufacturing output and valued added but also maintained

relatively stable employment in the face of increasing labor productivity due to the emergence of innovative industries and steady demand. In that decade, the United States experienced a greater gain in its share of manufacturing value added than any other G-20 country besides China (and China beat us only by a nose). The industries that helped us the most during the 1990s are the same industries we need to win today—innovative new industries, which in the 1990s were computers and communications equipment, along with precision devices, energy-intensive industries and many of our traditional strongholds, such as automobiles and metals processing.

There are already signs of a revitalization of manufacturing. For the first time in 10 years, manufacturing employment is on a significant upswing, adding almost a quarter of a million jobs over the past year.¹²⁰ At the same time, our goods exports, which include manufacturing, grew 18% in the first 10 months of the last year compared with the same period the year before, while services exports grew only 10%.¹²¹ We can restore the vitality of our manufacturing sector if we take the right steps now. ★

PLAY TO WIN

Regulatory Reform

Through improved analysis and management practices, the Council aims by 2020 to ensure the U.S. leads the world in regulatory competitiveness. This would boost economic activity, job creation and per-capita income even as we assure the health and safety of the American people.

THE CASE FOR COMPETITIVENESS

Regulation is destined to be controversial, yet it's essential to a well-functioning market economy. The question is always how best to strike the balance between competing public objectives. The public expects government to protect it against undue risk or harm while ensuring that regulations do not unduly burden private enterprise. The stakes are high: From the regulatory failures that helped produce the 2008 financial-sector meltdown to the complex permitting processes that can sometimes hold back important infrastructure projects, getting the regulatory balance right is important.

In many ways, the American regulatory system has been a model for the world. The framework of regulatory review in the United States has strongly influenced reform efforts in Europe, Canada, and elsewhere, as these economies seek to become more competitive. But we can't stand still. Just as with education, energy and innovation, our competitors are continuing to make advances and we need to intelligently modernize our approach to reflect global best practice and 21st-century realities. In the current economic crisis, the Council believes regulatory reform is needed to both achieve the right public policy balance and maintain confidence in the process.

Our aspiration is to use a combination of sound analytics and sound management practices to enhance our competitive position. Our specific proposals are described below. They focus on actively improving: stakeholder engagement (through a regulatory ombudsman and regulatory portal); regulatory procedures wherever possible (through a permitting program management office,

permitting one-stop shop and alignment of international regulatory standards); and regulatory impact analysis (through regular review and third-party analysis).

GUIDING PRINCIPLES OF REGULATORY REFORM

It may seem obvious that regulations need to be informed by a set of underlying ideas as to what society hopes to gain from the process. But in truth, these principles are often lost or ignored amidst battles over particular proposals. The Council believes it's important to recap them briefly as a point of departure for potential reforms. These guiding principles are as follows:

Regulations correct market failures and are sometimes essential for markets to function.

Markets do not always provide appropriate solutions to certain problems — such as externalities (like pollution), or information asymmetries that create risks of moral hazard (e.g., in finance) or adverse selection (in insurance markets, for example). Smart regulation can correct instances of market failure and leave our economy and the American people better off. In other cases, markets could not exist without rules of the road, transparency and other essential ingredients.

Regulatory reform efforts—just like regulation itself—should provide net benefits to society.

Regulatory reform must focus on creating a more effective, efficient regulatory system, and avoid unnecessarily slowing down or complicating the process.

Regulations have both costs and benefits.

For example, regulations that limit pollution may improve public health and save lives, but they may also require firms to buy pollution-control equipment they would not otherwise have purchased. Regulations that achieve desired

ends via market-based mechanisms (e.g., tradable acid rain permits) or performance-based rules (e.g., fuel economy standards) should be considered where possible.

Regulations should maximize net benefits.

It is not good enough simply to minimize costs, or maximize benefits, when writing new rules. As detailed in Executive Order 13563, agencies should judge a regulation based on whether it achieves the regulatory objective and maximizes net benefits to society—and to consider, where possible, cumulative costs imposed.*

No single element of cost or benefit should predetermine the regulatory outcome.

The goal is balance and reasonableness. For example, a restriction that prohibited any regulation that led to the loss of a single job would be misguided. If a regulation would save 1 million lives but cost 1,000 jobs, few people would argue that the 1,000 jobs are more important than saving 1,000 times as many lives.

Regulatory review should account for uncertainties and changing circumstances.

Since markets, technology and policy priorities evolve over time, regulations should be periodically revisited and, if warranted, revised.

The regulatory process should promote predictability and confidence in government.

The process through which regulations are adopted, changed, and discontinued should be open, transparent, consistent, fact-based and sensible.

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* This order is supplemental to and reaffirms the principles, structures and definitions governing contemporary regulatory review that were established in Executive Order 12866 (September 30, 1993). As stated in Executive Order 12866, and to the extent permitted by law, each agency must, among other things: propose or adopt a regulation only upon a reasoned determination that its benefits justify its costs (recognizing that some benefits and costs are difficult to quantify); tailor its regulations to impose the least burden on society, consistent with obtaining regulatory objectives, taking into account, among other things, and to the extent practicable, the costs of cumulative regulations; select, in choosing among alternative regulatory approaches, those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity); to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt; and identify and assess available alternatives to direct regulation, including providing economic incentives to encourage the desired behavior, such as user fees or marketable permits, or providing information upon which choices can be made by the public.

SIGNIFICANT STEPS ALREADY TAKEN

Partly at the Council's urging, the administration has implemented a number of important measures that provide a strong foundation for further progress. These steps include:

Retrospective cost-benefit analysis and regulatory review

The administration issued Executive Order 13563 in January 2011 that requested a government-wide review of federal regulations and plans to determine whether any regulations should be modified, streamlined, expanded or repealed. In August 2011, executive agencies released their final review plans. The plans include more than 500 specific commitments that will reduce cost, simplify the regulatory system, eliminate redundancy, and increase consistency and efficiency. At the Council's suggestion, the Office of Information and Regulatory Affairs (OIRA) also issued guidance that requests agencies to report regularly on their retrospective review efforts and to prioritize implementation of initiatives that will have an impact on competitiveness, job creation, economic growth and innovation.

Independent regulatory commission retrospective review

With the support of the Council, the President also issued Executive Order 13579 in July 2011 that called on the independent regulatory commissions and agencies (IRCs) to follow the principles of the President's January executive order and produce their own retrospective review plans.

Flexibility for small business

In January 2011, the President issued a memorandum on regulatory flexibility for small business, emphasizing the essential role that small business plays in the economy. The memorandum asked agencies to take additional steps to reduce the burden regulations place on small entities. In February 2011, OIRA directed executive agencies to develop initiatives to reduce paperwork and reporting burdens and to prioritize reforms that will reduce burdens on small business.

Streamlining permitting

Beginning in June 2011, the Jobs Council has laid out a series of recommendations for improving permitting and environmental reviews and to speed up review of job-creating infrastructure investments consistent with health, safety and environmental rules. (The details of these recommendations can be found in the Jobs Council's Interim Report.) Initial

steps to achieve these goals include selecting 14 high-priority projects that will receive expedited federal review. In addition, the administration will apply lessons learned and best practices from these projects to improve the permitting process for projects across government. To promote transparency and accountability in carrying out this initiative, the federal chief information officer and chief technology officer have together launched a centralized, online dashboard that allows all stakeholders to track the progress of these projects as they move through the permitting system.

RECOMMENDATIONS

To build on this progress, the Council urges the administration and Congress to pursue a series of further regulatory process improvements discussed below.*

1. Enhancing stakeholder engagement

Earlier public outreach and disclosure of data and costs

When developing rules that are likely to have significant economic impact, agencies should, whenever feasible, gather wide-ranging input from stakeholders on the scope and nature of the problem to be solved, and the benefits and costs of possible alternative solutions. The regulatory process should be open and transparent and should engage those affected at an early stage.

One method of promoting greater public involvement and transparency would be the expanded use of advance notices of proposed rulemaking (ANPRMs). A well-crafted ANPRM would solicit information agencies need to craft a notice of proposed rulemaking that: identifies the root cause of the problem they seek to address; outlines alternative solutions; makes a preliminary estimate of benefits and costs of those solutions; and calls for public comment on the agency's early analysis of these factors. OIRA should issue guidance to agencies on the use of ANPRMs and other forms of early public outreach, such as requests for information and notices of data availability.

In addition, to improve the depth and quality of public engagement, the public comment period should include an opportunity for interested parties to respond to comments made by others, so that agencies can benefit from a

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* There are two additional elements of regulatory reform that engendered substantial discussion within the Council: codifying certain executive orders and raising the standard of judicial review of agency decision-making. These elements were not included in the report because, although there were strongly held views on both sides, there was not a consensus among members.

thorough dialogue on issues.

The administration should continue its focus on transparency and high-quality analysis. Wherever feasible, it should continue providing underlying data and studies referenced in the ANPRM and subsequent rulemaking notices to the public in their entirety when the notice is published. The agency's analysis of the problem to be solved, as well as the benefits and costs of alternatives, should be based on scientific and technical evidence that should be subject to public scrutiny and meet basic standards for quality.

The process for the most costly rules (those with a projected economic impact of at least \$1 billion per year) should involve additional opportunities for public engagement and input, such as public forums and web-based portals. Additional engagement efforts should also be made available for other economically significant rules (\$100 million or more) where beneficial. OIRA should outline the process and requirements for enhanced and early public engagement.

Regulatory ombudsmen

Agencies should establish ombudsmen or even a separate, independent office within the agency to assist in the development of petitions for rulemaking and to help with regulatory streamlining and improving existing rules. This office (the IRS offers a promising model) would reach out to regulated parties for their feedback and should include a web portal for people to submit examples of regulations that are outdated, too burdensome or in conflict with agency objectives. This office would coordinate its work with the agency's regulatory retrospective review process and indicate where public comment was received that led to changes in regulations.

Regulatory portal

The Council recommends that the administration create a regulatory portal that presents a variety of information about regulatory requirements for each sector of the economy in an easy-to-read format and a centralized location. The portal should also be scalable and extendable with an open architecture, and should contain a "frequently asked questions" section related to each major regulation. This portal should allow for research of regulations by industry NAICS codes.

Guidance documents

There needs to be a clear distinction between guidance documents and rulemaking. Guidance should not be legally binding. Though it sounds a little funny, OIRA should update and reaffirm existing Office of Management and Budget (OMB) "guidance on guidance"—i.e., good

guidance practices that ensure the public and potentially affected stakeholders receive timely notice and have the chance to comment.

Reconsideration of final rules

Since outside parties are not privy to the agency deliberations that lead to a final rule, they are sometimes unable to suggest corrections to analytical or technical errors that may occur following the notice-and-comment phase of the rulemaking. OIRA should develop guidelines for how agencies should respond to petitions for reconsideration of final rules. The administration should also ensure executive branch agencies and IRCs update and affirm processes for requesting comments on the technical accuracy of the data used in support of a final rule. Congress, where bills correcting errors in final legislation are common, understands the benefits of after-the-fact technical fixes.

Consideration of small-business impact of final rules

Congress has decided that small business should be treated differently than large business. Under the Regulatory Flexibility Act (RFA), agencies must certify that a rule does not have a disproportionate effect on small businesses. Agencies cannot make the certification until they have done a regulatory flexibility analysis and taken steps to minimize the effects on small businesses. The adoption of interim final rules (IFRs), however, preempts the RFA process. OIRA should ensure that agencies conduct the proper analysis after undertaking IFRs (i.e., complete the certification or required RFA analysis before issuing the “final” final rule).

In determining how to regulate, agencies should consider the attributes of the regulated entities. For example, in some cases, well-intended rules aimed mostly at large firms—which have the staff and resources that make compliance economically feasible—can prove onerous to smaller firms that are not really the source of the problem. Officials should take pains to make these distinctions.

2. Improving regulatory processes

Permitting program management office

The President’s infrastructure permitting prioritization initiative is strongly supported by the Council. In order to ensure the effort is sustainable and achieves results, the Council recommends that a formal Program Management Office (PMO) be created and led by OMB. This office would receive professional staff from relevant agencies that would be detailed to the office on a rotating basis. The PMO

would establish overall objectives and specific performance metrics, identify barriers, track progress, establish incentive and penalty structures, and regularly report to the public on best practices and lessons learned. OMB’s role would be focused on overall PMO leadership (including setting direction and establishing the pace for decision making), not on project-level analysis.

Permitting “one-stop shop”

In addition to creating an institutional capability to drive federal permitting reviews, the administration should work with Congress to pilot an approach to consolidated permitting on a small number of large-scale projects. This one-stop shop would work with federal and local authorities to grant necessary federal, state and local approvals. State and local governments would have the option of choosing whether to participate in the program. If successful, the one-stop shop pilot might result in legal changes so that an approval by the shop would suffice to let an infrastructure project or other large-scale investment proceed.

Aligning international regulatory standards

In a globalized economy, U.S. companies can be subject to the regulatory requirements of a number of jurisdictions in export markets. Divergent requirements can create unnecessary costs, burdens and delays that hinder market access, particularly for small and medium-sized companies that rely on exports to grow their businesses and hire workers. Consistent with domestic law and international obligations, the administration should seek better alignment between U.S. regulations and the well-crafted regulatory approaches of major trading partners (where feasible and appropriate), while ensuring that such efforts do not compromise our ability to protect health, safety and the environment, as well as achieve other legitimate public policy objectives. To the extent that statutes unduly limit such harmonization, the administration should seek congressional action to eliminate these barriers.

3. Strengthening Regulatory Impact Analysis

Retrospective review of rules and their impact

OIRA should provide guidance on how agencies should prioritize the review of rules and develop and implement a system for retrospective review in the future. This would include a review of the continuing relevance of the rule, its optimal design, and lessons learned and best practices since the rule was put into place, and, for economically significant

rules, an opportunity for the public to comment on the costs and benefits of the rule in its current form. The purpose of this review would be to measure the rule's actual costs and benefits, and determine whether it is net beneficial.

For example, for current rules above a predetermined dollar threshold, the retrospective review could be phased in over an agreed-upon period. For newly adopted rules above that dollar threshold, the look-back review could be set in the course of the rulemaking proceeding. At the time a new rule is adopted, the regulating agency could specify the types of analysis it will likely undertake, the data and other information that it anticipates needing for the analysis, and its plans to implement a process of collection, while minimizing the need for additional, redundant data collection.

To encourage the regulator to conduct reviews of existing rules, agencies should provide a means for affected parties and the public to track the status of the review process. Agencies should make their reports public, submit them to Congress and post them online.

Regulatory impact analysis for IRCs

Congress should require IRCs to conduct cost-benefit analysis for economically significant regulations. For most regulatory agencies, these requirements are established and enforced within the executive branch pursuant to Executive Orders 12866 and 13563. The Jobs Council, in its October 2011 Interim Report, included a detailed recommendation for extending these requirements to IRCs. A requirement that IRCs must conduct regulatory impact analyses, coupled with some form of third-party regulatory review (through OIRA or some other office), would prompt IRCs to perform better analyses and to issue better and smarter regulations. (It would also be worthwhile to analyze mechanisms for assessing the cumulative effects, costs and benefits of existing and proposed rules across regulatory agencies.)

Adequate staffing of the regulatory review process

Thorough review by OIRA improves the quality of agency regulatory analysis and decisions. Yet since its inception in 1980, OIRA's staff has shrunk by half even though it has acquired additional responsibilities and its role is widely accepted and valued.¹²² Even modest improvements in regulations can yield billions of dollars in benefits to the public. Therefore, the Council recommends that OMB's staff be increased to a level that will permit it to conduct meaningful review of both executive branch and independent agency regulations.

Another way to promote objective analysis is to separate agency economists from the program offices that propose

regulations. The work of agency economists should be evaluated by other economists, with compensation and career advancement tied to the quality of their analysis, not on whether the analysis supports decisions already made.

Independent third-party analysis

Public confidence in government analysis is improved when it is reviewed by an independent party. Congress should consider commissioning periodic reports on the cumulative costs and benefits of regulations stemming from key authorizing legislation, and evaluating the impacts on public welfare and the GDP. Such work might be modeled on what the Congressional Budget Office (CBO) and the Government Accountability Office (GAO) do today. For example, studies could retroactively compare actual costs and benefits of a number of regulations to earlier projections and provide recommendations to improve projections. Such an office could also provide a means to better understand the cumulative effects, costs and benefits of existing rules across regulatory agencies, and their impact on economic activity, especially employment.

Analysis of regulatory-enabling legislation

Since Congress delegates authority in legislation to executive and independent agencies, there is inherent difficulty in analyzing what regulations will be deemed necessary by agencies to fulfill the mandates required of them by Congress. However, in many cases, Congress proposes amendments to laws to respond to new conditions and public concerns. In the case of such amendments, Congress should consider requiring a cost-benefit analysis of the current regulations already promulgated. This would provide empirical support and a more compelling rationale for the amendment. When feasible, Congress could also adopt a system for conducting impact analysis of proposed regulatory legislation before voting on the legislation.

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The Council believes that the regulatory reform initiatives that have received consensus support can bolster American competitiveness over the long term, and contribute to productivity growth and job creation while ensuring the American people have the protections they expect and deserve. ★

Tax Reform

Two blue-ribbon groups appointed by President Obama—the President’s Economic Recovery Advisory Board (PERAB), and the National Commission on Fiscal Responsibility and Reform (“Simpson Bowles”)—have already examined tax reform, work that in turn built upon a number of bipartisan study efforts in recent years. With such distinguished panels having recently weighed in on this question, this was not the primary focus of the Council. But it is an issue of enormous importance, and any serious agenda to bolster America’s long-term competitiveness must tackle tax reform. To that end, we want to underscore two central points.

First, our system of corporate taxation today hurts both business competitiveness and American workers, and cries out for reform. Second, as a society we must commit to a process that culminates in a bipartisan agreement on tax reform and long-run deficit reduction. It is simply too important to economic growth and the welfare of the American worker to delay the inevitable any longer. We have to forge a new fiscal consensus to move the nation forward.

CORPORATE TAXATION

There is a growing bipartisan consensus that we need comprehensive reform of the corporate tax system. The PERAB report articulated well the reasons reform is overdue (and the following summary draws from their work).

As of April 1, 2012, when Japan reduces its rate, the United States will have the highest statutory corporate tax rate (including federal and state taxes) among the 34 OECD countries. The 2011 average OECD rate, excluding the United States, is 25.1%, while the United States was at 39.2%. The top U.S. corporate rate at 35% is nearly ten percentage points higher than the average OECD rate of 25.5%. The average state corporate income tax rate in the United States is 4.2%, so when state taxes are included, the top combined tax rate in the United States is 39.2%. At the beginning of the 1980s, the U.S. corporate income tax rate

was slightly above the OECD average but since then most of the other OECD countries have reduced their rates significantly. As part of its long-term deficit reduction program the United Kingdom (U.K.) will actually lower its corporate tax rate to 23% by 2015. Canada lowered its rate to 16.5% this year and plans a further reduction to 15% next year.

Why does this matter? The high statutory corporate tax rate in the United States reduces the returns to saving and investment and the tax expenditures can distort the allocation of investment. A reduction in the rate combined with a broadening of the base could encourage more investment in the United States by U.S. corporations, and would also make the United States a more attractive place for foreign direct investment by foreign corporations (a priority the Council discussed in its Interim Report). An increase in investment in the United States by both domestic and foreign companies would, in turn, boost economic growth and employment. And the resulting increase in the capital stock—in the form of new businesses, factories, equipment and research, would improve productivity levels and wages. Economists generally agree that a smaller capital stock means less capital per worker and therefore less output per worker and a lower real wage. A recent OECD study concludes that of all taxes, corporate income taxes are the most harmful to economic growth because they discourage investment.

A growing body of research also shows that in a world of mobile capital, workers bear a rising share of the burden of the corporate income tax in the form of reduced employment opportunities and lower wages. So corporate tax reform is not just a “business” issue—it’s an issue affecting American workers and American firms.

Yet the basic contours of corporate income taxes have changed little over the last three decades, even as the environment in which business decisions are made has been transformed. Thanks to globalization and technological change, capital can move easily across borders, and differences in corporate tax rates now have stronger effects on any firm’s decisions about where to invest. Recent research finds that such differences have a significant and growing

influence on where multinational companies decide to locate their production and on the size of their investments in different countries.

The increased mobility of capital and the rise of multinational companies suggest that the appropriate corporate income tax rate is likely to be lower today than in the past. This is broadly consistent with the downward trend in corporate tax rates around the world during the last three decades. In the absence of coordination among countries on corporate tax rates, the appropriate competitive rate for an open economy like the United States will depend on corporate tax rates in other countries that are rival locations for internationally mobile investments. In short, the United States needs to view its corporate income tax rates as part of our nation's package for attracting job-creating investment.

To be sure, despite the high statutory rate, the corporate tax raises relatively little revenue—the fourth lowest in the OECD as a share of GDP. One reason for this apparent incongruity is that the corporate tax base is relatively narrow compared to the size of the business sector. About half of business income now accrues to “pass-through” entities like S corporations and partnerships; although the income of such pass-through entities is subject to tax at the individual level, it is excluded from the corporate tax. In addition, the business tax system—which often applies to non-corporate businesses as well as corporate businesses—has numerous provisions for special deductions, credits, and other tax expenditures that benefit certain activities. These provisions reduce the effective tax rate below the statutory rate. In addition, these provisions also result in very different marginal tax rates applying to seemingly similar types of business activities. Reducing the corporate tax rate and broadening the base would reduce these distortions and create a more level playing field among alternative investments.

The combination of a high statutory rate and numerous deductions and exclusions results in an inefficient tax system that distorts corporate behavior in multiple ways. The high statutory corporate tax rate reduces the return to investments and therefore discourages saving and reduces aggregate investment. In addition, some tax expenditures create incentives that drive behavior based on tax, not economic considerations; encourage investment in tax-favored equipment and certain other assets; and drive capital out of the corporate sector into non-corporate forms of business.

In addition, because certain assets and investments are tax-favored, tax considerations can drive overinvestment in those assets at the expense of more economically productive investments. Because the corporate tax means higher

effective rates on corporate businesses, business activity and investment are shifted to non-corporate businesses like partnerships and S corporations, or to non-business investments like owner-occupied housing. Because of its complexity and its incentives for tax avoidance, the U.S. corporate tax system results in high administrative and compliance costs by firms—costs estimated to exceed \$40 billion per year (or more than 12 percent of the revenues collected). And because interest is a deductible business expense, the corporate tax system favors debt financing over equity financing. All of these factors act to reduce the productivity of American businesses and American workers and drain resources away from more valuable uses. Most of these distortions also affect businesses beyond the corporate sector.

The experts the Council consulted believe that reforms to move the corporate tax system from one with a high tax rate and a narrow tax base to one with a broader tax base and a lower tax rate could correct a number of distortions associated with the current system. The Simpson-Bowles Commission and the PERAB reached a similar conclusion. Perhaps not surprisingly, most OECD countries that lowered their corporate tax rates in recent years also introduced measures to broaden their corporate tax base at the same time. Broadening the base must be done in a way that does not undermine the competitiveness of U.S. companies and their workers however. For example, the R&D tax credit is an important spur to innovation; the administration has proposed that this tax credit be simplified, expanded and made permanent, and the Council supports this.

CORPORATE TAX REFORM AND TERRITORIALITY

The 2011 Simpson-Bowles report and the report of the President's Export Council recommended that the United States move to a territorial tax system. We recognize that corporate tax reform, however, won't happen without some fundamental issues being resolved.

Many members of the Council believe the United States should move to a territorial system of taxing corporate income akin to the practices of the other developed economies. Territoriality would eliminate the so-called “lock-out” effect in the current worldwide system of taxation that discourages repatriation and investment of the foreign earnings of U.S. companies in the United States. The current worldwide system makes investing these earnings in the United States more expensive from a tax point of view

than re-investing them abroad where they are not subject to additional corporate tax in the United States

These members believe that a territorial system would enhance the ability of U.S. companies to acquire foreign companies and would eliminate tax incentives of U.S. multinationals to merge with or sell their foreign operations to foreign companies. This would also reduce the vulnerability of domestic firms being taken over by foreign firms operating with lower tax rates. According to this view, a lower corporate tax rate and the adoption of a territorial system would increase the competitiveness of U.S. companies relative to their foreign counterparts in both the United States and other locations, adding to the U.S. jobs that are needed to grow and support global growth.

Some members of the Council, however, disagree with this point of view, arguing that a territorial system of taxing corporate income would strengthen incentives for companies to move investment and employment to lower-tax jurisdictions. They believe that, if the United States adopts a territorial system of taxation, it is imperative that it is designed in a way that prevents U.S. firms from exploiting U.S. markets while avoiding U.S. tax. They believe the U.S. corporate tax system must be designed to prevent such behavior.

We are hopeful that such policy differences can be resolved as part of a broader, comprehensive tax reform initiative by policymakers. But with limited time devoted to these tax questions, the Council did not try to negotiate a consensus on the issue of territoriality as part of its work.

FISCAL RESPONSIBILITIES

A final word on revenues and long-run deficit reduction. The Council notes that the retirement of the large baby boom generation will double the number of seniors on Social Security and Medicare in the years ahead. Even if fundamental reform of these programs has a material impact on their long-term projected costs, the sheer growth in the number of retirees entering the system will cause spending on Social Security and Medicare to rise substantially. For these demographic reasons, the Simpson-Bowles commission concluded that the aging of America would affect the role of revenues in a long-run plan to get our fiscal house in order.

A PROCESS WITH TEETH

Given the stakes for U.S. competitiveness and fiscal responsibility, the Council urges Congress and the administration to begin to work on tax reform immediately. Leadership of both parties in the House and the Senate should make a public commitment to getting reform done and they should begin the process now. We know procedural motions do not guarantee success (as the fate of last fall's "Supercommittee" shows); political will remains essential. But the Council believes that pressures will build in the next year for policymakers to address this important fiscal matter. We believe a broad agreement should be possible. ★

A FINAL WORD

Aspirations

What we have tried to do in this report is highlight the major levers that can restore the country's leadership in competitiveness. These are, by definition, aspirational and long term. There is an old saying that there are two great times to plant a tree: 30 years ago and today.

In that spirit, let us recap our aspirations for American competitiveness.

Invest in our future

- Close the short- and long-term skills gaps so all Americans can reach their potential and every job can be filled promptly.
- Reach the top 10 globally in student performance in math and science.
- Grow private and public R&D to 3% of GDP, and ideally more.

Build on our strengths

- Take control of our energy future: Diversify our mix, reduce reliance on foreign oil, create jobs and reduce pollution.
- Own the industries and the innovations that will create the energy future.
- Increase our share of global manufacturing value added by 4% or more.

Play to win

- Ensure that the United States leads the world in regulatory competitiveness.
- Implement corporate tax reform as outlined by the National Commission on Fiscal Responsibility and Reform, the President's Export Council and the President's Economic Recovery Advisory Board.

The Council is energized by our challenges and excited by our prospects. Together, we can achieve these and other aspirations to improve our country and our future.

SUMMARY & STATUS OF RECOMMENDATIONS

The Jobs Council has identified more than 60 proposals that would help accelerate job creation and rebuild America's competitiveness. Council members such as Darlene Miller, Steve Case and Paul Otellini have taken immediate action on the proposals that require private-sector leadership. And in partnership with the President's Office of Management and Budget, the Council has moved aggressively to implement the recommendations that require common-sense government reform. As these next few pages show, we have made real progress.

Implementation of Jobs Council Recommendations

At the direction of the President, Chief Performance Officer and Deputy Director of the White House Office of Management and Budget Jeff Zients and Government Reform for Competitiveness and Innovation Initiative Executive Director Lisa Brown have led the administration's interagency efforts to implement the recommendations the Jobs Council presented to the President at our meetings in June and October 2011. In some cases, the Council brought new ideas to the administration; in others, we recommended accelerating initiatives already underway. Working together, the Council and the administration have made significant progress. Highlights of the administration's and the Council's activities are described below, organized within the five initiative areas from the Council's October report "Taking Action, Building Confidence."

REGULATORY REVIEWS AND PROJECT APPROVALS

COUNCIL RECOMMENDATION: Simplify regulatory review and streamline project approvals to accelerate jobs and growth.

ACTION: Expanding regulatory lookback principles to independent agencies.

At the recommendation of the Council, in July 2011, the President signed an executive order asking independent agencies to develop plans to reassess and streamline their existing regulations and to make those plans public. Sixteen independent agencies have submitted regulatory review plans. Implementation of regulatory lookback plans by the independent agencies will remove outdated and inefficient regulations, helping to ensure that our regulatory system is consistent with economic growth while protecting public welfare.

ACTION: Streamlining the medical device approval process.

The Food and Drug Administration (FDA) is engaged in a major initiative to streamline and improve the premarket approval process for medical devices. The Council has worked with the White House to facilitate private-sector input into the effort, including the FDA engaging a Lean Six Sigma consultant. In 2011, the FDA took 27 actions to improve the predictability, consistency, transparency and efficiency of its premarket programs. As a result of these business process improvements, the backlog of the most common type of device premarket application, called a 510(k) submission, decreased by 5% in 2011 after five years of steady increases.

ACTION: Expediting high-priority infrastructure projects.

The Council recommended that the administration streamline environmental permitting and, in particular, that it select projects with significant near-term jobs impact for expedited permitting and environmental review. In direct response to this recommendation, the President directed federal agencies in August 2011 to expedite review of infrastructure projects with significant jobs-creating potential and to pilot a public dashboard to track progress on those projects. By helping to launch major construction projects faster and more efficiently, these efforts will have a direct impact on job creation.

The 14 projects that agencies selected for expedited review range from the Tappan Zee Bridge replacement over the Hudson River in New York to NextGen aviation satellite navigation in Houston. The permitting and environmental reviews for three projects have been completed and a fourth issued its final environmental impact statement. Reviews for all of the pending projects are on target to be completed by their expedited deadlines. The Council's goal is that this expedited review process will serve as a template to reduce permitting delays for all future infrastructure projects.

ACTION: Launching the Federal Infrastructure Projects Dashboard to track priority expedited infrastructure projects.

Progress on the 14 expedited projects can be tracked on the Council-recommended Federal Infrastructure Projects Dashboard at <http://permits.performance.gov>. Since the dashboard's launch in November 2011, it has been expanded to pilot a tool for faster processing of public comments under the National Environmental Policy Act. The dashboard is a significant step in simplifying the tracking of the 14 expedited infrastructure projects, and the Council encourages the administration to extend the use of the dashboard to other significant infrastructure projects.

ACTION: Creating rapid-response teams to tackle transmission siting, transportation permitting and environmental reviews.

At the Council's urging to reform and accelerate the siting process for the electricity transmission infrastructure and to expedite infrastructure permitting, the administration announced in October 2011 the formation of two interagency rapid-response teams: a transmission team to accelerate the permitting and construction of electric transmission infrastructure and a transportation team to drive interagency coordination needed to expedite transportation project delivery. The Transmission Rapid Response Team will focus initially on seven pilot project transmission lines that, when built, will help increase electric reliability, integrate new renewable energy into the grid and save consumers money. The Transportation Rapid Response Team has coordinated scheduling for the Department of Transportation's six priority infrastructure projects listed on the Federal Infrastructure Projects Dashboard and launched a working group to assist the Federal Aviation Administration with implementing NextGen aviation satellite navigation.

ACTION: Issuing new guidance for agencies on efficient National Environmental Policy Act and permitting processes.

The Council on Environmental Quality, which oversees federal agency implementation of the National Environmental Policy Act (NEPA), issued draft guidance in December 2011 instructing agencies how to improve the efficiency and timeliness of NEPA environmental review processes. Based upon Council recommendations, the draft guidance outlines how agencies should keep their NEPA reviews concise and focused; integrate the NEPA process into the early stages of project planning and development; use the



scoping process to engage early with stakeholders and align NEPA requirements with other federal permitting processes; cooperate with state, local and tribal governments to produce joint environmental review documents that satisfy NEPA and other applicable requirements; and establish time limits for the various portions of the NEPA process.

INFRASTRUCTURE AND ENERGY

COUNCIL RECOMMENDATION: Accelerate investment in job-rich projects in infrastructure and energy development.

ACTION: Committing nearly \$4 billion in job-creating investment in building energy upgrades through the Better Buildings Challenge.

With leadership from the Council, President Obama, former President Bill Clinton, members of the Council and representatives from more than 60 corporate and local government partners announced on Dec. 2, 2011, nearly \$4 billion in combined private- and public-sector investments in energy upgrades to buildings. These investments will save billions in energy costs, promote energy independence and, according to independent estimates, create tens of thousands of jobs in the hard-hit construction sector.

ACTION: Investing in transportation infrastructure to stimulate economic activity.

Based upon a Council recommendation, in November 2011 the President directed the Department of Transportation (DOT) to expedite transportation projects and leverage private-sector funding to promote growth. The DOT has since announced 46 transportation projects that will receive \$511 million in funding through the TIGER III program, which provides grants to transportation projects that will have a significant national or regional impact. These projects were chosen for their ability to create jobs quickly and to stimulate economic activity. The projects are being funded months ahead of schedule and include money for multiple public-private partnerships.

NATIONAL INVESTMENT INITIATIVE**COUNCIL RECOMMENDATION: Begin a national investment initiative to boost job-creating inward investment in the United States, from global firms headquartered elsewhere and from multinational corporations headquartered in the United States.****ACTION: Strengthen SelectUSA, the federal effort to promote and facilitate foreign investment in the United States.**

On June 15, 2011 the President established SelectUSA, an office in the Department of Commerce tasked with coordinating government-wide efforts to attract and retain investment in the American economy. Acting on a Jobs Council recommendation, the President recently announced an expansion of SelectUSA to provide additional resources and personnel to promote foreign investment in the United States in 10 pilot countries, which represent over 30% of foreign direct investment. By 2013, the program will expand to 25 countries, representing nearly 90% of foreign direct investment. The program expands the responsibilities of Commerce and State Department officials in these countries and in the United States to include actively promoting investment in the United States by, among other things, supporting “Investment Missions” with state and local officials and connecting foreign firms to SelectUSA services.

ACTION: Accelerating visa processing in high-demand countries to stimulate growth in the travel and tourism industry.

The Council has been working closely with the State Department to accelerate visa processing—particularly in fast-growing countries such as China and Brazil, where demand currently outstrips processing capacity—while protecting our national security. Due to increased staffing and better use of facilities, the State Department has increased visa processing in China and Brazil by more than 30% over the past year and is working to achieve an increase of at least an additional 40% in visa adjudications in these countries in 2012. The Council, meanwhile, continues to work with the departments of State and Homeland Security to identify further opportunities and possible policy changes to accelerate visa processing.

ACTION: Promoting international travel to the United States.

The Council and the White House team have been working with BrandUSA, a new public-private partnership dedicated to promoting travel to the United States, to accelerate its launch and fundraising plans. BrandUSA was created by the Travel Promotion Act, which the President signed into law in 2010. Private-sector funds raised by BrandUSA are matched by designated federal funds up to a maximum of \$100 million. The Council has leveraged its deep private-sector expertise and extensive network to attract high-level chief marketing officers from the travel industry to advise BrandUSA and assist with fundraising.

ACTION: Streamlining the EB-5 immigrant investors program to attract job-creating foreign investment.

The administration is working to improve and leverage the EB-5 immigrant investor visa program, another Council recommendation. The number of EB-5 visas issued has already increased from 1,360 in fiscal year 2008 to approximately 4,000 in fiscal year 2011. The Department of Homeland Security’s Citizen and Immigration Services is enhancing the program by creating specialized review teams with business expertise, improving customer service through enhanced use of technology, engaging re-engineering experts to streamline the process, launching a premium processing service and evaluating additional options for maximizing the program’s potential and reducing fraud.

SMALL BUSINESSES AND HIGH-GROWTH FIRMS

COUNCIL RECOMMENDATION:

Launch a comprehensive drive to ignite entrepreneurship and accelerate the number and scale of young, small businesses and high-growth firms that produce an outsized share of American's new jobs.

ACTION: Speeding payments to small-business federal suppliers.

Acting on a Council recommendation, the President announced in September 2011 that the administration will accelerate payments to small-business government contractors, which will, in many cases, cut payment time in half, getting money into the hands of small businesses faster so

they can reinvest that money in the economy and drive job growth, a recommendation of the Jobs Council. More than 80% of federal government agencies have already implemented an expedited payment schedule, and we expect all agencies will implement this policy by spring 2012.

ACTION: Creating a virtual one-stop shop for small business and exporters.

Based upon feedback from small-business owners who participated in the Council's numerous Listening and Action sessions across the country, on Sept. 8, 2011, the administration announced BusinessUSA, a single online location to find out how to apply for loans, get critical information on exporting, identify potential contracting opportunities and connect with government services and programs that will help them grow. This new tool for small businesses and exporters will be available at www.Business.USA.gov. ★

Jobs Council

June Recommendations

Energy retrofitting (Better buildings)

Graduate 10,000 more engineers

Build workforce skills in advanced manufacturing

Health-care workforce development

Leverage EB-5 program

SBA loan "one-stop shop"

Promote small-business exports

Establish mechanisms to attract more foreign direct investment

Streamline permitting

Federal agency supplier financing

Accelerate demand for U.S. travel and tourism

Jobs Council

October Recommendations

Invest Aggressively and Efficiently in Cutting-Edge Infrastructure and Energy

- Reauthorize the main surface transportation programs
- Leverage and expand existing public-private infrastructure financing mechanisms
- Create a national infrastructure financing organization to attract private capital to infrastructure projects
- Protect and preserve the user-based funding of the highway trust fund
- Speed implementation of the next-generation air traffic control system
- Promote broadband construction to reach all Americans
- Streamline permitting and approval processes for jobs rich infrastructure
- Make extraordinary efforts to strike a balance on energy investments
- Modernize and expand the electric grid through transmission siting reform
- Mobilize private sector financing for advanced energy technologies

Nurture the High-Growth Enterprises that Create New Jobs

- Win the global battle for talent
- Reduce regulatory barriers and provide financial incentives for firms to go public
- Enhance access to capital for early stage startups as well as later stage growth companies
- Make it easier for entrepreneurs to get patent-related answers faster
- Streamline SBA financing access, so more high -growth companies get the capital they need to grow
- Expand seed/angel capital
- Bring together investors and entrepreneurs, particularly from neglected geographic areas
- Foster regional ecosystems of innovation and support growth of startup accelerators
- Expand programs to mentor entrepreneurs

- Allow university faculty to shop discoveries to any technology transfer office
- Enhance commercialization of federally funded research
- Address talent needs by reducing student loan burden and accelerating immigration reforms

Launch a National Investment Initiative

- Leverage local advantages through innovation investment zones
- Establish supply chain partnerships
- Upgrade SelectUSA and improve coordination between SelectUSA and U.S. states
- Improve immigration policies to bring jobs to the United States
- Explore tax reforms that would increase the competitiveness of businesses locating in the United States

Simplify Regulatory Review and Streamline Project Approvals

- Reform permitting processes to accelerate job creation
- Conduct regulatory process reform for independent regulatory commissions (IRCs)
- Boost tourism by reforming the visa process
- Improve the FDA approval process
- Streamline Patent Office processes to bolster innovation
- Speed payments to small federal suppliers

Develop Talent to Fill Today's Jobs and Fuel Growth

- "Right Skills Now" advanced manufacturing training
- "10,000 Engineers" initiative to graduate more U.S. engineers
- Health care workforce training in New York and California
- Stop the reverse brain drain by letting high-skilled immigrants stay in the United States

Jobs Council

January Recommendations

Invest in Our Future

Education

1. Develop partnerships between businesses and postsecondary educational institutions.
2. Increase data-driven transparency mechanisms to align labor supply with demand.
3. Emphasize the importance of preschool to educational success.
4. Implement high common standards.
5. Bolster the teaching profession.
6. Achieve data-driven improvements in education.

Innovation

1. Bolster private R&D through a competitive R&D tax credit, speedy tech transfer and strong IP enforcement.
2. Increase federal support for R&D and innovation, especially in pre-commercial and basic research, and target a larger share of federal R&D investment toward next-generation challenges.
3. Ensure that entrepreneurs can access financing to scale up their firms through traditional funding methods and new ones.
4. Assure our workforce is ready to innovate through education and skills and front-line innovation.
5. Target more of our R&D investments, public and private, to some of our greatest challenges—such as affordable delivery of high-quality education and health care.

Build on Our Strengths

Energy

1. Optimize use of all of our natural resources while protecting public health and the environment.
2. Support efficiency measures in electricity and transportation.
3. Drive energy innovation and investment from basic invention to industry scale-up.

Manufacturing

1. Build competitiveness broadly by addressing key barriers to competitiveness in the areas of skills, regulation, taxation and infrastructure.
2. Reform export controls to help small manufacturers dramatically boost exports and to spur local manufacturing cluster development.
3. Sharpen our edge in the industries so we can win by maintaining our energy advantage, supporting the scale-up of nascent industries and competing more aggressively for capital-intensive industries.

Play to Win

Regulatory

1. Enhance stakeholder engagement.
2. Improve regulatory processes.
3. Strengthen regulatory impact analysis.

Tax

1. Lower the corporate tax and broaden the base.
2. Address the issue of territoriality, consistent with the recommendations of Bowles-Simpson and the President's Export Council.
3. Congress and the administration should begin to work on tax reform immediately. Leadership of both parties in the House and the Senate should make a public commitment to getting reform done, and they should begin the process now.

LISTENING & ACTION SESSIONS

Over the past year, the Jobs Council has reached out across the country to hear first-hand from Americans about how to get our economy back on track. We held nearly two dozen Listening & Action sessions nationwide with businesses, entrepreneurs, employees, and community leaders. The people we met believe in this country, and the ideas they brought to the table helped shape the Council's recommendations for creating jobs and renewing American competitiveness.

2011 Jobs Council Listening & Action Sessions

Small Business Listening and Action Session: May 10, 2011

LOCATION: Hooven-Dayton Co., Dayton, OH
ATTENDEES: Jeffrey Immelt, Chairman and CEO, GE
Christopher Che, President and CEO, Hooven-Dayton
Dick Parsons, Chairman, Citigroup
Darlene Miller, President and CEO, Permac
OFFICIAL(S): Administrator Mills, Director Graves, and John Fernandez

Small Business Exports Listening and Action Session: May 17, 2011

LOCATION: Permac Industries, Burnsville, MN
ATTENDEES: Darlene Miller, President and CEO, Permac Industries
Antonio Perez, Chairman and CEO, Eastman Kodak
OFFICIAL(S): Secretary Locke, Director Graves

Energy and Smart Grid Listening and Action Session: June 13, 2011

LOCATION: North Carolina State U., Raleigh, NC
ATTENDEES: Lew Hay, Chairman and CEO, NextEra Energy
Jeffrey Immelt, Chairman and CEO, GE
Gary Kelly, Chairman, President, and CEO,
Southwest Airlines
Brian Roberts, Chairman and CEO, Comcast
OFFICIAL(S): Secretary Locke

Entrepreneurship Listening and Action Session: June 13, 2011

LOCATION: American Underground Co., Durham, NC
ATTENDEES: Steve Case, Chairman and CEO, Revolution
John Doerr, Partner, Kleiner Perkins Caufield and Byers
Dick Parsons, Chairman, Citigroup
Sheryl Sandberg, COO, Facebook
Robert Wolf, Chairman, UBS Americas

Innovation Listening and Action Session: June 13, 2011

LOCATION: Biogen, Durham, NC
ATTENDEES: Mark Gallogly, Co-founder and Managing Principal,
Centerbridge Partners
A.G. Lafley
Eric Lander, Director, Broad Institute of MIT
and Harvard
Antonio Perez, Chairman and CEO, Eastman Kodak

Manufacturing Listening and Action Session: June 13, 2011

LOCATION: DuPont, Durham, NC
ATTENDEES: Ellen Kullman, Chair and CEO, DuPont
Paul Otellini, President and CEO, Intel
Matthew Rose, Chairman and CEO, BNSF Railway
Laura Tyson, Professor, University of California-Berkeley
OFFICIAL(S): Administrator Mills and Fred Hochberg, Chairman,
Export-Import Bank

Workforce Training Listening and Action Session: June 13, 2011

LOCATION: North Carolina Central University, Durham, NC
ATTENDEES: Roger Ferguson, President and CEO, TIAA-CREF
Joe Hansen, President, UFCW
Monica Lozano, CEO, ImpreMedia
Darlene Miller, President and CEO, Permac
Penny Pritzker, President and CEO, Pritzker Realty
Group

High-Growth/High-Tech Listening and Action Session: August 2, 2011

LOCATION: VMware, Palo Alto, CA
ATTENDEES: Steve Case, Chairman and CEO, Revolution
John Doerr, Partner, Kleiner Perkins Caufield and Byers
Sheryl Sandberg, COO, Facebook
Reed Hastings, CEO, Netflix
Dr. Stephen Herrod, CTO, VMware
Chris Anderson, Editor-in-Chief, Wired Magazine
OFFICIAL(S): Aneesh Chopra, CTO, Don Graves

continued on next page

Infrastructure Listening and Action Session: September 1, 2011

LOCATION: SMU, Dallas, TX

ATTENDEES: Tom Donohue, President and CEO, U.S. Chamber of Commerce
Lew Hay, Chairman and CEO, NextEra Energy
Gary Kelly, Chairman, President and CEO, Southwest Airlines
Matthew Rose, Chairman and CEO, BNSF Railway
Richard Trumka, President, AFL-CIO
Laura Tyson, Professor, University of California-Berkeley
Robert Wolf, Chairman, UBS Americas
David Cohen, Executive Vice President, Comcast
John Donovan, CTO, AT&T
C. Michael Walton, Professor, University of Texas

OFFICIAL(S): Secretary LaHood, Director Graves, Aneesh Chopra, and Lauren Azar

Foreign Direct Investment Listening and Action Session: October 7, 2011

LOCATION: State Department, Washington, DC

ATTENDEES: Jeffrey Immelt, Chairman and CEO, GE
Antonio Perez, Chairman and CEO, Eastman Kodak
Robert Wolf, Chairman, UBS Americas

OFFICIAL(S): Secretary Clinton and Acting Secretary Blank

High Growth Entrepreneurship Listening and Action Session: October 11, 2011

LOCATION: AlphaLabs, Pittsburgh, PA

ATTENDEES: Steve Case, Chairman and CEO, Revolution
Christopher Che, President and CEO, Hooven-Dayton

OFFICIAL(S): Acting Secretary Blank, Director Mayorkas

Innovation Listening and Action Session: October 11, 2011

LOCATION: Aquion Energy, Pittsburgh, PA

ATTENDEES: John Doerr, Partner, Kleiner Perkins Caufield and Byers
Mark Gallogly, Co-Founder and Managing Principal, Centerbridge Partners
Lew Hay, Chairman and CEO, NextEra Energy
Gary Kelly, Chairman, President, and CEO, Southwest Airlines
Laura Tyson, Professor, University of California-Berkeley

OFFICIAL(S): Dr. John Holdren

Manufacturing Listening and Action Session: October 11, 2011

LOCATION: Seegrid, Pittsburgh, PA

ATTENDEES: Jeffrey Immelt, Chairman and CEO, GE
Paul Otellini, President and CEO, Intel
Antonio Perez, Chairman and CEO, Eastman Kodak
Richard Trumka, President, AFL-CIO

OFFICIAL(S): Administrator Mills

Veterans and Small Business Listening and Action Session: October 11, 2011

LOCATION: HERR- PITT, Pittsburgh, PA

ATTENDEES: Ellen Kullman, Chair and CEO, DuPont
Darlene Miller, President and CEO, Permac
Dick Parson, Chairman, Citigroup
Matthew Rose, Chairman and CEO, BNSF Railway

OFFICIAL(S): Fred Hochberg, Chairman, Export-Import Bank

Workforce Development Listening and Action Session: October 11, 2011

LOCATION: Hill House Association, Pittsburgh, PA

ATTENDEES: Roger Ferguson, President and CEO, TIAA-CREF
Brian Roberts, Chairman and CEO, Comcast
Robert Wolf, Chairman, UBS Americas

OFFICIAL(S): Secretary Solis

Jobs Council Panel at Financial Times Event: October 13, 2011

LOCATION: New York City

ATTENDEES: Steve Case, Chairman and CEO, Revolution
Antonio Perez, Chairman and CEO, Eastman Kodak
Laura Tyson, Professor, University of California-Berkeley

Business Council Event: October 21, 2011

LOCATION: Atlanta, GA

ATTENDEES: Jeff Immelt, Chairman and CEO, GE
Ken Chenault, Chairman and CEO, American Express
Matt Rose, Chairman and CEO, BNSF Railway

Advanced Manufacturing Training Event: October 27, 2011

LOCATION: Minneapolis, Minnesota

ATTENDEES: Darlene Miller, President and CEO, Permac
Chris Che, President and CEO, Hooven-Dayton
Administrator Mills
Jay Timmons, NAM

Healthcare Workforce Training Event: December 12, 2011

LOCATION: LaGuardia Community College, New York City

ATTENDEES: Ken Chenault, Chairman and CEO, American Express
Mark Gallogly, Co-founder and Managing Principal, Centerbridge Partners
Mayor Bloomberg
Secretary Sebelius

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The President's Council on Jobs and Competitiveness (Jobs Council) was created to provide nonpartisan advice to the President on continuing to strengthen the nation's economy and ensure the competitiveness of the United States and on ways to create jobs, opportunity and prosperity for the American people.

The Jobs Council is made up of members appointed by the President from among distinguished citizens outside the federal government, including citizens chosen to serve as representatives of the various sectors of the economy to offer the diverse perspectives of the private sector, employers and workers on how the federal government can best foster growth, competitiveness, innovation and job creation.

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Caufield & Byers



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Brian Roberts

Chairman and CEO,
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Matthew Rose

Chairman and CEO,
BNSF Railway



Sheryl Sandberg

Chief Operating Officer,
Facebook



Richard L. Trumka

President, AFL-CIO



Laura D'Andrea Tyson

S.K. and Angela Chan
Professor of Global
Management, Haas School
of Business, UC Berkeley



Robert Wolf

Chairman, UBS Americas
President, UBS Investment
Bank

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