

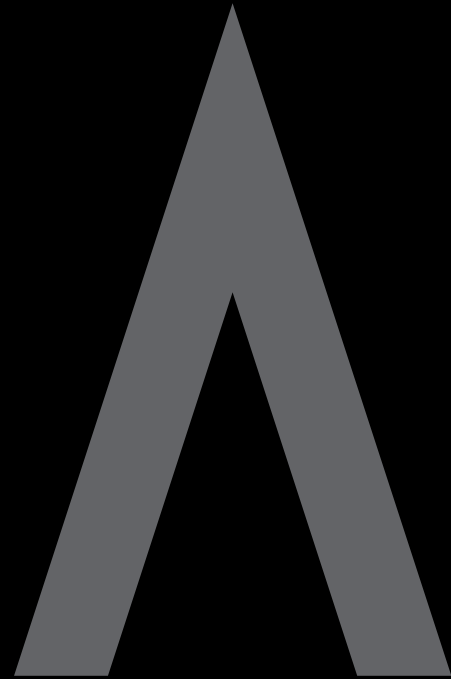
Compete.

New Challenges, New Answers



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Council on
Competitiveness



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At a Glance

Compete. New Challenges, New Answers

The United States faces a global competitiveness landscape that has radically and irrevocably changed. Prosperity is not an American privilege—and complacency is no longer an option. America will have to choose to compete for leadership in the 21st century. This means ensuring that:

- Every American has the skills to prosper in the global economy.
- America remains the innovation laboratory of the world—leading in research and nimble at deploying it into the best products and services in the global marketplace.
- America's infrastructure provides a strong and modern platform for productivity growth and global competitiveness.
- America has an action agenda for energy security and sustainability.

COMPETE PASS

America needs to win the skills race. The largest number of job openings over the next 10 to 15 years will be in middle-skilled jobs—which underpin our technology economy, do not offshore easily, pay well—and which are going unfilled by the hundreds of thousands. The *CompetePass* provides training for American workers in a way that gives them the power to choose specific career paths, while the private sector and government team up to offer training opportunities that are both relevant and required.

COMPETE NEXT

America has always been a nation of new frontiers. Our ability to retain our status as the world leader in cutting-edge technologies is critical if we want to compete. Investment in frontier research and innovation is the magnet that attracts investment and talent globally. In 2007, Congress overwhelmingly authorized significant increases in investment through the America COMPETES Act, but failed to deliver the promised funding. That needs to be addressed immediately. *CompeteNext* will double the investment in basic and applied research across the federal government and triple the investment in energy-related research.

COMPETE BONDS

With global supply chains, IT networks, energy networks—the platforms for moving goods—services and information are becoming a critically important competitive advantage. The President should create a *CompeteAmerica Savings Bond* that is tax-exempt, federally guaranteed and available to Americans who want to invest in U.S. competitiveness. With a one-two punch, we can both stimulate personal savings and invest in America's future superhighways: a national smart power grid for energy, low carbon emission network for transportation and a broadband build-out for communications.

COMPETE ENERGY

Energy will be a defining competitiveness challenge for the new Administration and Congress—for economic competitiveness, national security and long-term environmental sustainability. Energy price and supply volatility impact economic growth, global trade and investment, the location of industrial production and job creation, retention and loss. *CompeteEnergy* calls for the implementation of the Council's 100-day energy action plan (www.compete.org). Critical components of this agenda include: accelerating deployment of low-carbon energy solutions; building a smart, national electric grid; improving financing mechanisms for market deployment of new technologies; and leveraging federal research assets to enhance regional green clusters of innovation.

Why the Urgency?

Talent

- The global labor supply effectively quadrupled between 1980 and 2005. China's labor force is nearly 800 million, more than five times the size of the U.S. labor force.¹
- Nearly a third of American students leave high school without a diploma. For minorities, the rate is closer to 50 percent.² Less than 40 percent of young American students are proficient in math, reading and science.³
- The United States ranks 17th among developed nations in the proportion of college students receiving degrees in science or engineering, a fall from third place three decades ago. It ranks 26th in the proportion receiving undergraduate degrees in mathematics.⁴

Investment in Research and Technology

- At under one percent of GDP, federal investment in scientific research is at its lowest level in fifty years.⁵
- Investment in energy-related R&D represents less than seven percent of total federal R&D dollars.⁶
- The nation's personal savings rate dropped to nearly zero percent during the first quarter of 2008, down from almost 2.5 percent in the first quarter of 2000.⁷

Infrastructure

- America's physical infrastructure—roads, bridges, schools, the electric grid, telecommunications—will require \$1.6 trillion just to bring the nation's infrastructure to good condition.⁸
- Construction of power transmission facilities has decreased about 30 percent since 1990 and annual U.S. investment in new transmission facilities has declined over the last 25 years.⁹
- The U.S. has dropped to 15th in the world in rankings for broadband access, speed and price.¹⁰
- The volume of air traffic, which has congested the current system, resulted in delays or cancellations of nearly 30 percent of all U.S. flights at a current estimated cost of \$40 billion. Congestion is expected to double or triple by 2025.¹¹

Energy

- Today, world oil reserves are 80 percent owned by the national oil companies of foreign governments.¹²
- In 2005, Americans consumed almost five times more energy per capita than the worldwide average and has the lowest energy productivity among developed economies.¹³
- The United States is also the most CO₂ intensive country, producing more than twice the level of Northwestern Europe and Japan.¹⁴

Compete.

New Challenges, New Answers

The United States faces a global competitive landscape that has radically and irrevocably changed. We are in the midst of a transition between two great ages—from an industrial age in which physical resources were the main factors of production, to an age in which ideas, imagination and creativity are the most important factors of production. The challenges ahead are significant. Prosperity is not an American privilege. America will have to retool if it is to compete for leadership in the 21st century.

The Changing Global Landscape

The real question is not how to shore-up the last days of the Industrial Age, but rather how to shape the new Innovation Age that is rising rapidly to replace it.

The world's economies are connected to an unprecedented degree. This tight integration has created global economic interdependency with respect to investment flows, geopolitical conflicts and the use of natural resources. For example, the meltdown in domestic and global financial markets

demonstrates how interlinked the world's financial systems are today.

Emerging economies are flexing their economic muscles. Just 20 years ago, such countries would compete principally on natural resources and commodity goods, slowly working their way up the economic development curve. But that curve has been shattered. Now they connect digitally to the business activities and markets of advanced economies. Many emerging economies are challenging our traditional strengths by emulating America's formula for economic success—developing capabilities in science and technology, educating and training their people and reaching out to global markets. Now they are competing against us for the investment and business activities of global firms that create jobs and drive GDP growth.

Neither an affordable nor a reliable supply of energy is a given for any country. The vise of dependency on foreign oil is tightening its grip. We now import 60 percent of the oil we consume from an increasingly unstable supply. Global energy demand is projected to soar by more than 50 percent by 2030. The International Energy

Agency estimates that \$22 trillion of investment for energy supply infrastructure will be required between now and 2030 to meet the demand for energy. The Council's Energy Security, Innovation & Sustainability (ESIS) Initiative documented energy and sustainability as critical competitiveness issues now impacting where organizations manufacture, locate facilities, perform research and development and create jobs.

International collaboration on climate change is needed. In 2005, carbon emissions in the OECD and non-OECD areas were about the same—14 billion metric tons each. By 2030, the U.S. Department of Energy projects that non-OECD emissions will almost double to 27 billion metric tons of carbon annually versus 16 billion tons in the OECD. If developing economies do not have access to cost-effective clean energy solutions, they may have no alternative but to increase their use of dirty fossil fuel-based technologies, contributing significantly to pollution and accelerating climate change. Solutions must be global and include developing countries.

Today's corporations are global. This is dispersing innovative capacity across multiple geographic locations and changing the nature of trade. Twenty years ago, trade was about moving goods from domestic producers to international customers. Today, sales from foreign affiliates of U.S. companies in host markets are more than three times greater than U.S. exports of goods and services.

Global trade in services is affecting our jobs. Billions of workers from developing economies have swelled the global labor pool and many are willing to

work for lower wages than their U.S. counterparts. Global deployment of advanced telecommunications means that many of these workers do not have to relocate to perform the world's digitized work. As a result, more and more U.S. workers at every skill level face growing competition via imported products and services, worker immigration, offshoring and corporate global sourcing and delivery practices.

More jobs are being lost to technology. Machines are increasingly intelligent, higher functioning and capable of performing a new hierarchy of tasks. The result is a decline in jobs that involve routine manual or cognitive tasks. As the cost of labor rises and the cost of automation declines, the elimination of some jobs becomes inevitable.

The economy favors higher skills. The economic returns on education have increased. The greatest gains have come from jobs that require complex communication skills. In addition, as intangible assets—patents, employee knowledge, research and software—comprise more and more of a company's value. Competitive and market success depends on skilled people who can work with these idea-based assets and the technology and management systems used to create value from them.

The world is being rewritten in digital code, genetic code and atomic code. The digital, biotechnology and nanotechnology revolutions will create disruptive effects that will alter every industrial sector, unleashing vast opportunities for innovation.

The nature of innovation is changing. Innovation is multidisciplinary and collaborative. It is global in scope and diffusing at ever-increasing rates.

This radically altered landscape has enlarged the skill base needed to develop innovative products and services. It now extends beyond scientists, engineers and traditional product developers to include IT workers, business process and service delivery designers, entertainers, artists and cultural anthropologists to name a few.

What does this all mean for the United States?

The shifts driving this global transformation mean that America must change too, but how?

- We cannot keep or replicate the advantages of emerging economies.
- We cannot create more scientists and engineers than China or India.
- We cannot continue to remain dependent on foreign sources of energy.
- We cannot compete on low wages, commodity products, standardized services or routine technology development.

For America, it is innovation and ideas that matter most. America should be synonymous with leading edge, with quality, with reliability and safety, with products that are the best serviced and supported in the world—an American standard of excellence that will provide competitive advantage in global markets. America must be the innovation laboratory to the world and be powerful, yet nimble, in deploying those innovations in global markets.

America Must Choose to Compete

More than 100 years ago, American society reorganized around the Industrial Age. Americans left the farm. We built a huge industrial machine. We built infrastructure to move an expanding range of mass-produced goods. People learned new skills. And our government policies shifted to support this new kind of economy. Because we made these changes, America became the strongest and wealthiest nation on the planet, enjoying the highest standards of living the world had ever seen.

Now we must choose change again. To maintain our competitiveness, standard of living and national security, we must mobilize our society for a new Age of Innovation. We must be able to out-imagine and out-create, if we are to out-compete.

Where America Stands

We have strengths...

- Our investments in R&D are still the world's largest, and we have talented scientists and engineers who push the frontiers of knowledge and create a flood of new technologies.¹⁵
- We have strong creative types in the fields of biomedicine and digital technology, in new media, in marketing, in developing new consumer products and services and in all kinds of design and entertainment.
- We have a dynamic economy marked by an entrepreneurial spirit that is constantly testing the limits of what is possible and asking the "what if" questions that spark new innovations.

- Our financial system has been better than most countries' in getting investment capital into the hands of businesses and entrepreneurs.
- Our businesses have done a great job in using new digital technology, adopting better management methods, boosting productivity and improving quality.
- Our government has been a leader in fighting to drive global growth by bringing down barriers to trade and investment all over the world.

But, we also have significant weaknesses.

America's Talent

Many Americans are not prepared to succeed in an Age of Innovation in which knowledge, skills, creativity and the ability to change are essential for individual prosperity.

- Despite significant increases over the past decade in per pupil spending, less than 40 percent of students are proficient in math, reading and science.¹⁶
- More than three-fourths of students in two-year colleges cannot perform tasks that require synthesizing information and making complex judgments, nor can they synthesize and analyze multiple pieces of information located in complex documents. About two-thirds of students in four-year colleges cannot do this either.¹⁷
- Many adult Americans fall below the skill level considered the suitable minimum for coping with the demands of modern work. One-third could not identify a specific location on a map and half

could not calculate the total cost of ordering office supplies from a catalog.¹⁸

- Most of our scientists and engineers are trained deeply in a single discipline. That is how we fund the R&D projects in which they get their education and training. It is critical for innovation, however, that they be able to work across disciplines and understand the benefits of multidisciplinary collaboration.

America's Ability to Invest

When it comes to investing in our future and in our innovation system, America has serious problems with its balance sheet.

- The Federal government will have to borrow nearly \$1 trillion in response to the ongoing financial meltdown.¹⁹
- Starting in 2005, America's personal savings rate dropped to about half or less of the already low level it was for most of the 2000–2004 period.²⁰
- In 2007, spending on entitlement programs totaled \$1.085 trillion, or 42 percent of all government spending.²¹
- We are transferring our wealth out of the country. The nation's trade deficit was over \$700 billion in 2007. And petroleum-related imports accounted for 36 percent of the U.S. trade deficit, up from under 30 percent two years ago.²²
- America's total corporate tax rate of 42 percent is higher than in 90 other countries including U.S. competitors such as Singapore, Ireland,

Denmark, Korea, the United Kingdom, Chile, Indonesia, Thailand, Vietnam, Malaysia, Bulgaria and Taiwan.²³ Lower corporate taxes make these other countries attractive places to invest in research and development, build factories and create jobs.

America's Infrastructure

America's infrastructure used to be the best in the world, but it is crumbling, and our Industrial Age policies are no match for today's innovation-driven global economy.

- It will require \$1.6 trillion just to bring America's physical infrastructure—roads, bridges, schools and telecommunications—to good condition.²⁴
- The United States has dropped to 15th in the world in rankings on broadband access, speed and price.²⁵
- U.S. demand for electricity has increased by about 25 percent since 1990.²⁶ But we are not building enough new power plants; we have overburdened our aging electric grid, and construction of power transmission facilities has decreased about 30 percent.²⁷
- Key efforts to open-up global trade have gone off the rails. The Doha round of multi-lateral trade talks collapsed and bilateral trade agreements between the United States and other countries have stalled. This is costing U.S. businesses billions of dollars, access to new markets and the creation of thousands of jobs.²⁸

America's Energy Challenge

Competition for carbon-based energy sources, volatility in supply and price, and the challenge of climate change could make energy an Achilles Heel of American competitiveness.

- Today, world oil reserves are 80 percent-owned by the national oil companies of foreign governments, introducing significant uncertainty regarding access to and cost of supply for America.²⁹
- In 2005, Americans consumed almost five times more energy per capita than the worldwide average, yet has the lowest energy productivity among developed economies, presenting a competitive disadvantage as energy prices rise.³⁰
- The United States is the most CO₂ intensive country, producing more than twice the level of Northwestern Europe and Japan.³¹
- Average household annual spending on energy goods and services rose by about \$1,700 between 2003 and 2006, cutting into discretionary spending.³²

A Long-Term Plan to Retool America for a New Economic Age

We have to roll up our sleeves and get moving because we have a lot to do. The challenges facing America and the choices we make on how to transform for this new age will determine whether we look back on today and see a turning point toward a prosperous future or whether we turned our backs on the need for change and settled for the status quo.

Are we going to take the steps to remake America's economic engine for success in a world that has radically changed? Are we going to build an economy that thrives on innovation?

If we chose to compete, then we must make investments in people, new ideas, infrastructure and secure and sustainable energy that will enhance America's capacity to innovate. It will not be easy. These investments will be difficult to make in the face of mounting debt, tightening credit and geopolitical obligations. **The Council on Competitiveness believes that, in the midst of the current financial crisis, we must clear new paths forward for economic growth—the time, the need, the opportunity is now.**

We propose the following plan to start retooling our economy and strengthening our competitive position.

Talent

Opportunities for every American to reach their full potential and contribute to a U.S. economic renaissance: a commitment to quality education, skills training and jobs.

1. Initiate a CompetePass Program—Workers are the foundation of the innovation economy. America's prosperity, national security and ability to attract high value manufacturing depends on a skilled workforce. We must ensure that the 70 percent of American citizens who do not complete college have the skills necessary to compete for tremendous opportunities in technical middle-skilled jobs. The portable CompetePass will support development of public and private training and education initiatives that provide workforce entrants and incumbent jobholders with access to the skills they will need to succeed. Eligible participants can secure CompetePass through Department of Labor one-stop training centers and

redeem the pass at certified employer-, academic- or labor-sponsored training programs that meet industry-driven skills requirements in high growth job sectors.

2. Make Full Implementation and Funding of the Education Provisions of the America COMPETES Act a High Priority—Congress must appropriate the funding authorized by the America COMPETES Act, which would support: improved teacher training in science, technology, engineering, mathematics and critical foreign languages; improved mathematics instruction in K-12; increased number of teachers in Advanced Placement and International Baccalaureate programs; improved and expanded foreign language instruction and improved academic content standards and assessments.

3. Transform U.S. Education—Deploy technologies, management, organization and performance-enhancing innovations that have transformed other knowledge and service-producing industries. To strengthen the skills of the education workforce, the federal government should provide states with funding to design voluntary, incentive-based compensation systems to reward teachers and relevant support staff for improving the overall quality of instruction and creating a stronger educational environment. Incentive plans should encourage school-wide collaboration, with particular emphasis on improving student achievement in low-income schools and creating programs that support high-quality professional development.

4. Attract to the United States the Highest Skilled Professionals to Drive U.S. Innovation—

Attract and retain the best and the brightest high-skilled scientists, engineers and professionals from around the world by reforming the nation's immigration system while maintaining national security priorities.

Investment

Get it, keep it, build it and grow it in America: investment models and a tax structure to prime our economic engines.

1. CompeteNext: Pursue the Frontiers of Knowledge and R&D to Support Game-changing Innovation—

Double the federal investment in basic and applied research in the physical and life sciences and, within this increased investment, increase the allocation of R&D investment for multi-disciplinary research to support multi-disciplinary innovation.

Triple the investment specific to energy-related research to fuel energy and energy efficiency innovations in transportation, appliances, green buildings, materials, fuels, power generation and industrial processes.

2. Solve Grand Challenges—Establish national prize competitions and focused research efforts through public-private partnerships to address **grand technology challenges in areas such as energy and the environment**, food and water shortages, health and pandemics and security threats.

3. Compete in America Tax Incentives—Develop a tax structure that encourages investment in America’s economic engines, ensures small businesses are not punitively taxed, helps attract and retain R&D and manufacturing in the United States and boosts access to the patient capital needed for innovation, new company formation and bankrolling entrepreneurs with great ideas. This includes capping the corporate tax rate at 25 percent for all businesses regardless of size, reforming and making the R&D tax credit permanent, reducing the tax liability on repatriated foreign earnings for 12 months and maintaining competitive capital gains tax rates for all assets.

Infrastructure

Platforms for America and Americans to compete: physical, energy, information and policy infrastructures.

1. CompeteAmerica Savings Bond Program—Stimulate U.S. personal savings and provide needed financing for critical U.S. infrastructure investments by directing the Secretary of Treasury to initiate the *CompeteAmerica* program: tax-exempt, federally guaranteed bonds available only to individual U.S. national investors who wish to invest in America’s future competitiveness. The *CompeteAmerica* bond proceeds will be transparently reinvested, along with matching state funding, into projects that will result in greater energy and homeland security, lower carbon emissions and economic competitiveness for

all Americans. These include broadband expansion, cleaner public transportation systems and **a national electric transmission superhighway with on and off ramps for all electricity sources in the 21st century.** These systems will also support business efficiency and encourage more of the world’s companies to operate from a base in the United States.

2. Reassert Leadership in Global Trade and Development: Unlock Global Trade and Investment, and Promote Sustainable Growth in Emerging Economies—To smooth the way for American innovations in overseas markets and grow our global customer base, the United States must take global leadership in reigniting multilateral trade negotiations and aggressively pursue bilateral trade talks and agreements including taking leadership in addressing global climate change and carbon emissions. An emphasis should be placed on the great markets of the future outside of the developed economies. Given the increasingly dominant role of intangibles in the American economy, trade talks must have a strong focus on intellectual property rights protection. **We also must encourage energy efficiency and the deployment of cost-effective clean energy in ways that promote economic development and poverty reduction in the emerging economies.**

3. Reinvent America’s Manufacturing Enterprise to Turbocharge Innovation, Industrial Base Capacity and Skilled Workers—Support a 21st century advanced manufacturing infrastructure by

revitalizing the Defense Department's historical role as a sponsor of dual-use breakthrough manufacturing technologies and establishing prototype innovation extension centers. Put the power of high-performance computing into the hands of all American producers, innovators and entrepreneurs. Significantly expand access to U.S. facilities and expertise in high-performance computing, modeling and simulation techniques to enable the United States to lower the cost of innovation and develop high-value innovations that would otherwise be impossible.

Energy

America must act now on energy and sustainability and implement *Prioritize: A 100-Day Energy Action Plan* (www.compete.org), key recommendations of which are included in this report.

1. Finance America's Energy Future—Establish and capitalize a \$200 billion National Clean Energy Bank, modeled on the U.S. Export-Import Bank and Overseas Private Investment Corporation, to provide long-term financing—including loan guarantees, lines of credit, equity investments and insurance—for the market deployment of energy efficiency and clean energy products, technologies, services and projects that reduce, avoid or sequester carbon. Make the commercialization of utility-scale clean energy systems a priority.

2. Pilot Sustainable Energy Solutions Through Regional Test Beds—Direct the Secretary of Energy to create the 21st Century Clean Energy Leadership Initiative, a public-private partnership funded at \$5 billion over ten years, matched by state and private sector investments, to create regionally-based research and development test-beds, while leveraging the existing federal energy research and development infrastructure.

3. Accelerate Energy Security, Productivity and Sustainability—Immediately develop and utilize all sources of energy in America in sustainable ways—including oil, gas, coal, nuclear, hydro, wind, solar, biofuels, geothermal, fusion and other advanced energy sources—and level the playing field on subsidies while creating incentives to discover and deploy new energy sources, consistent with environmental standards and safeguards.

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The Council on Competitiveness is the only group of corporate CEOs, university presidents and labor leaders committed to ensuring the future prosperity of all Americans and enhanced U.S. competitiveness in the global economy through the creation of high-value economic activity in the United States.

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The key to U.S. prosperity in a global economy is to develop the most innovative workforce, educational system and businesses that will maintain the United States' position as the global economic leader.

The Council achieves its mission by:

- Identifying and understanding emerging challenges to competitiveness
- Generating new policy ideas and concepts to shape the competitiveness debate
- Forging public and private partnerships to drive consensus
- Galvanizing stakeholders to translate policy into action and change

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