SMALL BUSINESS MAJORITY
A NEW POLITICAL VOICE

Innovation and Technology

The Good News: America Enjoys a Powerful Collaboration between Small Business and Technology

Small business entrepreneurship and technological innovation go hand-in-hand. The small business sector relies on technology while advancing it: Small businesses of all sizes routinely use emerging technology to ensure cost-efficient production, distribution and communication with customers, employees, investors, and other stakeholders. At the same time, small businesses are collectively a major source of innovation in the United States and uniquely positioned to deploy new technologies and create the next generation of jobs that come with them. Small business advances technology and technology advances small business.

In a technologically charged global economy where the rate of innovation portends economic success, small business competitiveness depends on timely adoption of scientific and technological advances. SBM calls for enhanced partnership between government and the private sector to advance America's competitiveness through innovation and entrepreneurship. To this end, SBM calls for:

1. An affordable, widespread, high-quality broadband infrastructure.
2. Active government support for emerging technologies
3. A particular focus on technologies that foster energy independence.
4. A revitalized education system, including strong science, engineering and technology programs.
5. Fact-based federal science policies.

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The Bad News: Our Global Competitive and Technological Edge is at Risk

The great hallmark of the U.S. economy is its capacity to innovate, yet today the United States struggles to maintain its scientific and technological edge. A few facts illustrate the problem:

- America has lost 425,000 technology jobs since 2000.[1]
- The U.S. share of patents and scientific papers around the world continues to drop.[2]
- The number of science and engineering degrees earned by U.S. academics continues to decline.[3]America's technology infrastructure has one of the slowest growth rates among industrialized nations.[4]

These trends, which the National Science Foundation says "threaten the economic welfare and security of our country,"[5] are particularly troubling to America's small businesses.

And yet the Fiscal Year '07 budget proposed by the current administration seeks to cut funding for science and technology by $600 million.[6] Despite the promises of the American Competitiveness Initiative (as presented in the January 2006 State of the Union Address), the current administration has once again proposed slashing funding for important scientific and technological endeavors, including premier small business technology-support programs.[7] Research and development funding has been effectively ignored: from 1994 until 2000, R&D enjoyed an average annual growth of 5.8 percent but since the first year of the Bush

administration, R&D growth has sputtered along at a 1% growth rate (the 50-year average is 4.3%). Recent administration claims of record R&D funding levels rely on conflation of two concepts– basic and applied research is *not* being funded – rather, entities which already have the resources to make significant R&D expenditures are being granted tax credits. In many cases, the funding levels are merely reversing steep cuts included in last year's budget proposal.[8] The economic opportunities promised by widespread community-based broadband access are effectively quashed by the government-sanctioned monopolistic behavior of incumbent telecommunications corporations.[9] Equally alarming, the current administration politicizes the objective role of science in federal policymaking by choosing its experts and positions on the basis of religious doctrines.

The integrity and quality of American technological innovation has suffered under the current administration's indifference to science and technology infrastructure. It is time to change course.

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Getting Back America's Technology Edge

In partnership with entrepreneurs and small businesses across the country, the federal government must embark on a new "man on the moon" program to develop and deliver the next generation of scientific and technological innovation. In pursuit of this goal, SBM supports:

An Affordable, Widespread, High-Quality Broadband Infrastructure

America can only embrace the future by embracing widespread adoption of basic broadband. In order for American to embrace the future, access to broadband must be universal, high-quality and it must be affordable.

In the near future, telephone, radio and the Internet will all be delivered to the home (or home office) via a single broadband connection.[10] A recent study estimated that seizing the opportunity of universal (or near-universal) access would add $500 billion to the economy;[11] another notes that universal broadband deployment will create 1.2 million jobs per year.[12]

Access to high-performance digital communications is a fundamental prerequisite to small business participation in the global economy. Small business has taken note of the economic promise of the Internet: some 45% of all small and medium-sized business will make internet use a central tool in running their business in 2006.[13] Yet compared to our competitors in the global marketplace, the quality of America's broadband is sluggish, the costs outrageous, and the saturation minimal – the United States is thirteenth in broadband saturation, ranking behind Japan, Iceland and Belgium.[14] America's small businesses need a world-class infrastructure to compete globally.[15]

While the current administration has articulated its goal of universal affordable broadband service by 2007, it has left policy development in large part to the telephone and cable companies that control some 93% of the country's broadband market.[16] Instead of losing small business jobs to cities where broadband access is available, some communities have taken steps to ensure that local small businesses have what they need to stay and keep the local economy healthy.

SBM endorses these and other efforts that allow small businesses to access an omnipresent broadband infrastructure and believes that all communities should establish a comprehensive and viable broadband strategy. A few entrepreneurial communities, including San Francisco,[17] Tempe, Minneapolis and, most notably, Philadelphia, have taken matters into their own hands and provide residents and businesses with affordable (usually around $25/month) or free high-speed wireless web access. As Philadelphia's chief information technology officer told BusinessWeek, "Just as with roads of old, if broadband bypasses you, you become a ghost

town."[18] Just as America relied on the highway infrastructure for 20th Century growth, we must build a technology infrastructure for 21st Century growth.

Big-business telecom interests (the successors of the Bells) have lobbied for legislation protecting their incumbency as exclusive broadband providers. This legislation seeks to prohibit communities from threatening their position as exclusive providers of broadband access, even where private interests have not taken steps to provide service.

The federal government must ensure that the private interests of a few telecom companies do not crush innovative community efforts to provide high-quality broadband access to citizens at affordable prices. In that spirit, SBM endorses the Community Broadband Act of 2005, a bi-partisan bill that would preserve the ability of local governments to provide broadband capability and services. SBM also endorses the Wireless Innovation Act of 2006,[19] an important bi-partisan initiative that would direct the FCC to move quickly to free up currently unused broadcast airwaves for wireless broadband use. With more unlicensed spectrum available, community broadband efforts will provide faster and more reliable wireless broadband to rural and small-town users.

By the same token, SBM opposes a bill sponsored by Rep. Pete Sessions (R-TX), a former employee of telecom giant SBC Communications, which would prevent municipalities, including those who are underserved or not served by private sector, from getting into the wireless game without "checking in" with the same companies that have not served the community.[20] The federal government must not further subsidize the Bells and Baby Bells at the expense of American competition and innovation.

Active Government Support for Emerging Technologies

Future job security relies on today's research and development. Basic research (which seeks to further scientific understanding in general and has led to many seminal innovations) will set up the country for the next generation of technology, allowing America to retain its role as the global leader in innovation and ingenuity. In this spirit, SBM calls for increased funding for technology research of small business production, distribution and communication as well as biotechnology, advanced medical technologies, nanotechnology, broadband, wireless, renewable energy and new environmental technologies.[21]

The federal government recently committed more than $60 billion in subsidies to airlines and the steel and oil industries[22], yet programs supporting the development of tomorrow's leading technology and industries are allowed to languish.

Instead of favoring waning last-century industries (supported by robust lobbying wings) with hand-outs, we must cultivate those technologies which will lead us to the next generation of American industry and American jobs.[23] SBM calls for targeted tax reform, a rational regulatory policy and bold legislative initiatives, which support, not impede the creation of the next generation of American businesses and jobs.

Examples of vital initiatives that reflect small business' priorities include:

- **The Innovation Agenda**

  One of the earliest calls for focus on America's global competitiveness came in the form of the House Democrats' Innovation Agenda.[24] The Innovation Agenda is a five-pronged initiative introduced in November 2005 that seeks to support America's competitive edge in the global economy. The Innovation Agenda calls for reform – and the realistic funding required – in support of: an educated and skilled workforce; sustained federal R&D; a guaranteed technology infrastructure; energy independence through development

of new sources; and targeted small businesses policy initiatives (such as continued support for the Manufacturing and Extension Partnership and Advanced Technology Programs, described below). SBM shares the policy goals set forth in the Innovation Agenda and joins other business leaders in endorsing it and legislation in support of it.[25]

- **The PACE Act of 2005 and Similar House Initiatives**

  The Protecting America's Competitive Edge (PACE) Act of 2005[26] is a broad-based legislative initiative that is comprised of three Senate bills, one each focusing on energy, education or finance and tax incentives. Among its 20 well-considered proposals, the PACE Act would increase basic research funding (with doubled R&D funding), encourage high-risk, high-reward innovation, establish a new governmental entity to assist establish a new research agency within the Department of Energy, and launch farsighted educational initiatives discussed in more detail below. SBM joins a bi-partisan coalition (including Sen. Pete V. Domenici (R-NM) and Sen. Jeff Bingaman (D-NM)) in supporting the PACE Act, and similar legislation proposed by Rep. Bart Gordon (D-TN) in the House.

- **The National Innovation Act of 2005**

  The National Innovation Act (NIA) of 2005, as introduced in the Senate by Sen. Joseph Lieberman (D-CT) and Sen. John Ensign (R-NV), is a response to a report issued by the Council on Competitiveness.[27] The NIA encourages government research agencies to spend some 3% on high-risk, long-term research, seeks to establish a President's Council on Innovation, and encourages the growth of regional innovation "hot spots". SBM endorses the NIA as the sort of legislative initiative that will keep America's small business competitive in a global economy.

- **The COMPETE Act of 2005**

  SBM endorses the Collaborative Opportunities to Mobilize and Promote Education, Technology, and Enterprise Act of 2005 (the COMPETE Act), co-sponsored by Sen. Norm Coleman (R-MN) and Sen. Mark Pryor (D-AK).[28] The COMPETE Act would expand the R&D tax credit, fund U.S. Patent and Trademark Office efforts to decrease new patent turnaround time, and "upskill" the American workforce so that our workers can take advantage of the promise of technological innovation.

- **Research and Experimentation Tax Credit**

  Any meaningful plan to keep American competitiveness on track must include establishing a permanent R&D tax credit (as do the PACE Act, the NIA and the COMPETE Act). The federal government can encourage the private sector to spend more on R&D by granting permanent status to the Research and Experimentation Tax Credit, a federal tax credit for research and development. The credit was introduced in 1981 and has been extended 10 times through tax legislation. It is time to make this a standing tax credit.

- **Federal Support for the Advanced Technology Program**

  The Advance Technology Program (ATP) is an existing National Institute of Standards and Technology (NSIT) program that helps industry invest in longer-term, high-risk research with payoffs far beyond private profit. By sharing the research costs with private companies, ATP accelerates the development of early-stage, innovative technologies, helping industry raise its competitive potential while providing Americans with a higher

standard of living. Despite the current administration's proposed Fiscal Year 2007 budget, which seeks to slash this program, ATP is a vital initiative that we must continue to fund.

- **Continued Support for the Manufacturing Extension Partnership**

  The Manufacturing Extension Partnership (MEP), a Department of Commerce program, is a network of NSIT-run centers that provide guidance and innovation assistance to small manufacturers. It is funded through a combination of public and private funds and has been credited with the creation of some 50,000 jobs and has been able to spend $912 million to help small businesses modernize.[29] While the current administration seeks to destroy this program by cutting funding, it is a vitally important small business initiative that is a central part of a responsible small business policy.

A Particular Focus on Policies that Foster Energy Independence

The federal government's backward-looking policy and failure of innovation has let too many thought-leadership opportunities to slip away. The opportunity for energy independence through environmentally clean technology offers an object lesson.

Clean technology is a $607 billion industry comprised mostly of small businesses.[30] America once led the industry in innovation and productivity – today, of the top 20 renewable energy companies in the world, only two are American. Wind power generation, pioneered in California, has fallen to barely half that of Germany. Eight of the ten most fuel-efficient cars are Japanese – the other two are from Germany.[31] Despite talk about managing America's "addiction to oil", the recent administration has spent its tenure slashing new energy research and development. At a time when traditional energy costs have at doubled, the tone set by the administration has injured the alternative energy business environment, reflected in precipitous declines in private R&D investment.[32] Moreover, the administration's 2007 budget request includes a paltry 0.1% increase in Department of Energy funding, and outlays for energy programs that are significantly below the benchmarks established in the Energy Policy Act of 2005, including providing just one-third the authorized amount for hydrogen research. How can we develop the modern technology needed for energy independence when our most promising technologies are left without government support?

Instead of waiting for our global competitors to take dominance of this inevitably robust industry, the federal government should provide sufficient capital for the development of clean technologies, help the industry commercialize the technology, and lead R&D investment by example.

A Revitalized American Education System, Including Strong Science, Engineering and Technology Programs

SBM proposes a significant increase in educational programs – including early education – to foster the development of the next generation of American scientists, engineers, technologists and entrepreneurs and ensure that we have a scientific and technologically literate electorate who can make political decisions about the future of our country. As IBM CEO Sam Palmisano said in 2004, the training programs currently supported by the federal government "train people for jobs that don't exist--in the past."[33] If America is to remain competitive in the global economy of the future, we must educate our workforce for the jobs of the future. SBM endorses efforts such as the PACE-Education Act which proposes scholarships for students who would go on to be scientists or math and science teachers and federal support for Advanced Placement math and science program advocacy, and similar goals included in the Innovation Agenda, both of which are discussed above.

Fact-Based Federal Science Policies

The administration's restrictions on stem cell research and its hostility to mitigating global warming confound scientists and researchers around the world and are clear examples of ideology impeding American ingenuity.[34] By subjecting federal policy decisions to objective scientific scrutiny, our government can make sound funding and research decisions and implement policies with integrity and purpose. A scientifically sound, apolitical federal research policy will ensure independence and transparency in the formulation of federal scientific initiatives. Further, the federal government must remove the highly politicized barriers on stem cell research, and reconstitute the government's scientific advisory bodies with qualified scientists who do not have conflicts of interests. To this end, SBM applauds the recent passage of an amendment to the Health and Human Services appropriations package introduced in the Senate by Sen. Richard Durbin (D-IL) that included prohibitions on disseminating misleading scientific information and questioning panel nominees about political affiliations. SBM also endorses the Restore Scientific Integrity to Federal Research and Policy Making Act of 2005,[35] introduced by Rep. Henry Waxman (D-CA), and similar legislation introduced in the Senate by Sen. Durbin.

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Resources

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The Innovation Agenda: A Commitment to Competitiveness To Keep America #1.
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Debating U.S. Broadband Policy: An Economic Perspective
Robert W. Crandall Brookings Institution Policy Brief #17, March 2003
Available online at: http://www.brookings.edu/comm/policybriefs/pb117.pdf

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[1] "Technology Plan to Create Jobs and Empower Americans to Lead in the 21st Century," *John Kerry for President*, 2004.

[2] The U.S. share of patents has fallen from 60% to 52% since 1980; the percentage of scientific papers written by Americans has fallen 10% since 1992, and the percentage of American papers published by the top physics journal, Physical Review, has fallen from 61% to 29% since 1983. "Science and Engineering Indicators 2004," *National Science Foundation/National Science Board*, May 4, 2004.

[3] The number of 18- to 24-year olds who receive science degrees has fallen to 17th in the world, whereas it ranked third three decades ago. From 1980 to 1998 American doctoral degrees in science and engineering rose steadily, but then declined by 6% from 1998 to 2001. Natural science and engineering degrees in the United States as a percentage of bachelor's degrees have declined from 21% in the mid-1980's to 17% today. Since 1990 bachelors degrees in engineering have declined by 8% and degrees in mathematics have declined by 20 percent. Twenty-four nations in 2000 awarded a higher percentage of science and engineering degrees to students than the United States. The United States awarded 5.7 science degrees per 100 24-year-olds, compared with a ratio of 13.2 to 100 in Finland, which awarded the highest proportion. *Ibid.*

[4] Organization for Economic Cooperation and Development, *Broadband Statistics, June 2005*. Available online at: http://www.oecd.org/dataoecd/60/44/35527548.xls.

[5] See footnote 2.

[6] "Setting the Wrong Priorities: An Analysis of the President's 2007 Budget," Center for American Progress, February 7, 2006. Available online at: http://www.americanprogress.org/site/pp.asp?c=biJRJ8OVF&b=1415147.

[7] In its Fiscal Year 2007 budget proposal, the Bush administration proposed the elimination of the Advanced Technology Program and a 56% reduction in the Manufacturing Extension Partnership. Democratic Staff, House Small Business Committee, "Impact of FY 2006 Budget on Small Business," March 2,2006. In addition, the administration's restrictive immigration practices repeatedly turn away scientific talent. The issuance of visas in 2002 was 55% lower than in 2001. National Science Foundation/Nation Science Board Report, 2003. As reported in Richard Florida, "Creative Class War," *Washington Monthly*, January/February 2004.

[8] These mere corrections which have been touted as a commitment to innovation include reversing the planned lay-offs at the National Renewable Energy Laboratory. "America is Addicted to Oil: Ten Tough Questions and Answers for President Bush on Kicking the Oil Habit," Center for American Progress, February 16, 2006. Available online at: http://www.americanprogress.org/site/pp.asp?c=biJRJ8OVF&b=1408771.

[9] Charles H. Ferguson "The United States Broadband Problem: Analysis and Policy Recommendations" Brookings Institution Working Paper, May 31, 2002. Available online at: http://www.brookings.edu/views/papers/ferguson/working_paper_20020531.pdf.

[10] Robert McChesney and John Podesta, "Let There Be Wi-Fi," *Washington Monthly*, January/February 2006. Available at: htt://www.washingtonmonthly.com/features/2006/0601.podesta.html.

[11] Robert W. Crandall "Debating U.S. Broadband Policy: An Economic Perspective," Brookings Institution Policy Brief #17, March 2003. Available online at: http://www.brookings.edu/comm/policybriefs/pb117.pdf.

[12] Stephen B. Pociask, "Building a Nationwide Broadband Network: Speeding Job Growth," Telenomic Research, LLC, February 25, 2002. Available online at: http://www.newmillenniumresearch.org/event-02-25-2002/jobspaper.pdf.

[13] Stacey Perman, "What Entrepreneurs See in 2006," *BusinessWeek*, January 10, 2006. Available online at: http://www.businessweek.com/smallbiz/content/jan2006/sb20060109_580413.htm.

[14] See footnote 4.

[15] "Providing Ubiquitous Gigabit Networks in the United States, *A Report by the IEE-USE Committee on Communications and Information Policy (CCIP)* March 14, 2005. Available online at: www.ieeeusa.org/volunteers/committees/ccip/docs/Gigabit-WP.pdf**.**

[16] Jesse Drucker, "For U.S. Consumers, Broadband Service Is Slow and Expensive," *The Wall Street Journal*, November 16, 2005, Page B1.

[17] Jesse Seyfer, "S.F. Release Proposals For Citywide Wireless Internet Access," *The Mercury News*, February 22, 2006. Available online at: http://www.mercurynews.com/mld/mercurynews/news/13938106.htm.

[18] "Wi-Fi With its Own Zip Code," *BusinessWeek*, September 5, 2005. Available online at: http://www.businessweek.com/magazine/content/05_36/b3949053_mz011.htm?chan=tc.

19 "The Wireless Innovation Act of 2006," 109th Cong., 1st sess., S. 2327.

[20] "The Preserving Innovation of Telecom Act" 109th Cong., 1st sess., H.R. 2726.

[21] See, for example, the USDA Rural Broadband Loan and Loan Guarantee Program.

[22] The Export-Import Bank of the United States routinely guarantees purchases and gives loans to overseas companies. A further discussion available online at: http://www.exim.gov/portals/buyer/index.html#lg.

[23] Laura Meckler and David Rogers, "GM, Ford Craft Plea for Limited Federal Assistance," *The Wall Street Journal*, February 9, 2006, Page A1.

[24] *The Innovation Agenda: A Commitment to Competitiveness to Keep America #1*, November 2005. Available online at: http://www.housedemocrats.gov/news/librarydetail.cfm?library_content_id=557.

[25] Among others, the Innovation Agenda has been endorsed by Cisco Systems, Inc. President and CEO John Chambers. Nancy Pelosi, "R&D Democrats," *The Wall Street Journal*, Op-Ed Section, February 13, 2006.

[26] "The Protecting American's Competitive Edge (PACE) Act of 2005", 109th Cong., 1st sess. S. 2197, S. 2198, S. 2199. Co-sponsored by Sen. Pete V. Domenici (R-NM), Sen. Jeff Bingaman (D-NM), Sen. Lamar Alexander (R-TN) and Sen. Barbara Milkuski (D-MD).

[27] "The National Innovation Act (NIA) of 2005," 109th Cong. 1st sess., S. 2109, H.R. 4654.

[28]"The Collaborative Opportunities to Mobilize and Promote Education, Technology, and Enterprise (COMPETE) Act of 2005." 109th Cong., 1st sess., S. 1020. Co-sponsored by Sen. Norm Coleman (R-MN) and Sen. Mark Pryor (D-AK)

[29] An overview of MEP is available online at: http://www.mep.nist.gov/about-mep/overview.html.

[30] "Intel Chief: U.S. Losing Tech Lead, Jobs," *Forbes*, October 10, 2003.

[31] Shamaranukh Mohuiddin, "How America Lost Its Clean Technology Edge," Progressive Policy Institute Report, December 2004.

[32] *Ibid*.

[33] Martin LaMonica "IBM Funds Retrain to Fight U.S. Job Drain," *Cnetnews.com*, March 1, 2004, Available online at: http://www.news.zdnet.com/2100-3513_22-5167506.html.

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[35] "The Restore Scientific Integrity to Federal Research and Policy Making Act of 2005," 109th Cong. 1st sess., H.R. 839 and S. 1358.