

Birth of the Digital New Deal An Inventory of High-Tech Pork-Barrel Spending

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Executive Summary

Congressional spending sprees are nothing new in Washington. But now, new spending initiatives are cropping up that cover telecommunications services, the Internet, and the high technology sector in general. Although federal legislative activity on this front is not a formally unified effort, the combined effect is tantamount to the creation of what might be called a “Digital New Deal.” Just as policymakers proposed a litany of New Deal programs and spending initiatives during the Great Depression era, lawmakers today are devising many new federal programs aimed at solving the supposed emergencies or disasters that will befall the telecommunications industry without government assistance. The recent troubles of the dot-com and telecommunications sectors have only added fuel to the fire of interventionism.

The new communications, cyberspace, and Internet-related spending initiatives that policymakers are considering or have already implemented can be grouped into four general categories: (1) broadband deployment; (2) digital education, civic participation, and cultural initiatives; (3) cybersecurity; and (4) research and development. Dozens of new federal programs

have been proposed in these areas during the 107th Congress. And dozens of other assistance programs already exist.

The dangers of the cyber-pork barrel should be obvious. Washington subsidy and entitlement programs typically have a never-ending lifespan and often open the door to increased federal regulatory intervention. That kind of political meddling could also displace private-sector investment efforts or result in technological favoritism by promoting one set of technologies or providers over another. Moreover, subsidy programs are unnecessary in an environment of technological competition, characterized by both proliferating consumer choices and uncertain market demand for new services. Finally, perhaps the leading argument against the creation of a Digital New Deal is that by inviting the feds to act as a market facilitator, the industry runs the risk of becoming more politicized over time.

Before high-tech sector leaders become too comfortable in Washington circles, they should ask themselves if they want their future to be so closely tied to the whims of federal legislators and regulators.

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Introduction

Just as the 1930s economy needed a New Deal, today we need a Technology New Deal.¹

— Michael Price,
Vice Chairman of Evercore Partners

Congressional spending sprees are nothing new in Washington and, in recent years, even supposedly fiscally minded Republicans have found the temptation to spend lavishly too hard to resist.² The Farm Security and Rural Investment Act of 2002, for example, will shower the agriculture industry with almost \$200 billion in new subsidies over the next decade.³ This comes on top of the \$20 billion per year that Congress has shelled out over the past three years to farmers.⁴ And it comes in spite of a reform bill, the “Freedom to Farm” law in 1996, that was supposed to phase out such handouts over seven years.⁵

Although wasteful spending binges are an all too common feature of the modern legislative process, a host of new spending initiatives are cropping up that cover telecommunications services, the Internet, and the high technology sector in general. Although federal legislative activity on this front is not a formally unified effort, the combined effect might be called a “Digital New Deal.” That is, just as policymakers proposed a litany of New Deal programs and spending initiatives during the Great Depression era to deal with that crisis, lawmakers are today devising a myriad of new federal programs aimed at solving the many supposed emergencies or disasters that will befall industry or consumers without government assistance. The recent troubles of the dot-com and telecommunications sectors have only added fuel to the fire of interventionism.

Justifications for these Digital New Deal efforts are varied. In the “findings” section of proposed legislation or in the press releases accompanying the measures, legislators argue that federal spending efforts are

important to “bridge the digital divide,” “ensure the timely deployment of broadband to all Americans,” “guarantee safe and secure networks,” “protect children from the evils of the Internet,” “create a technologically savvy workforce,” “spur economic development and job creation,” “promote consumer confidence when using the Internet,” and “improve computer security.”

Regardless of the stated rationale behind the bills, the one thing they all share in common is the intention to spend taxpayers’ dollars in pursuit of ambiguous—and, in many cases, unrealistic—political objectives.

Nonetheless, such interventionist efforts are growing. Federal legislative activity on the high-tech front has been exploding in recent years. According to *National Journal's Technology Daily*, more than 600 bills had been introduced in the 107th Congress as of August 2002 that would impact the Internet, the digital economy, or the telecommunications sector.⁶ That is a significant increase in legislative activity over previous sessions of Congress, in which a much smaller number of high-tech bills were introduced. In fact, just two years ago, Silicon Valley venture capitalist Floyd Kvamme, who currently serves as the co-chair of the President’s Council of Advisors on Science and Technology, lamented to the *San Jose Mercury News*, “Right now there are 118 bills in Congress to regulate the Internet.” “[Regulation is] coming,” Kvamme warned, “and if we’re not involved we’re in trouble. We’re all in growth companies, and regulation stops growth.”⁷ Journalist Kent German of *Upside* magazine notes the reason for the increased attention by Washington: “The government’s interest in the industry was somewhat minimal at first,” he argues, “but exploded after it realized technology is not only a huge and somewhat glamorous driver for the economy, but it has also created jobs and been a source of political fundraising.”⁸

Although much of this new legislative activity is regulatory in character, an increasing portion of it is “promotional” in nature. That is, legislators think they can help promote various objectives in the high-tech sector

through subsidies, tax credits, or other forms of federal assistance. It is difficult to get an exact count or breakdown of regulatory bills versus subsidization proposals, but dozens of major high-tech subsidy proposals are being considered by the 107th Congress, and several programs already exist within federal agencies to allocate money to various projects. Appendixes A and B feature an extensive list of some of the existing programs as well as many current Congressional measures proposing new programs.

Of course, the pork barrel game is a two-way street. Policymakers enjoy spreading around favors to various constituencies, but the companies and organizations receiving those subsidies are under no obligation to go on the public dole. However, government handouts usually prove difficult to resist. Even those who find handouts distasteful will usually end up getting in line for them just to ensure their competitors don't have a leg up. "The high-tech industry has realized that the federal government can greatly impact its business, and it has now come to Washington with a lot of opinions," notes Kent German.⁹ A recent headline in *The Economist* nicely summarizes what's happening today: "Mr. PC Goes to Washington: America's Technology Industry Is Increasingly Intertwined with Government."¹⁰

In 2000, Cypress Semiconductor CEO T. J. Rodgers published a prescient manifesto entitled "Why Silicon Valley Should Not Normalize Relations with Washington, D.C.," in which he issued a stern warning to his Silicon Valley and technology sector friends regarding the dangers of falling prey to Beltway politics: "The political scene in Washington is antithetical to the core values that drive our success in the international marketplace and risks converting entrepreneurs into statist businessmen."¹¹

Regrettably, however, it appears that Rodgers' worst fears have come true. The high-tech sector is becoming more actively engaged in Washington policymaking, and Beltway bureaucrats and legislators have been all too eager to oblige this new constituency by con-

structing the edifice for a Digital New Deal of federal entitlement programs.

An Alphabet Soup of New Spending Programs

"Cyberpork" is a subcategory of a far broader corporate welfare infrastructure surveyed periodically by the Cato Institute. Taxpayer subsidies to private business reached \$87 billion in fiscal year 2001 according to that survey.¹² The slate of new communications-, cyberspace-, and Internet-related spending initiatives that policymakers are considering, or have already implemented, can be grouped into four general categories:

1. Broadband deployment
2. Digital education, civic participation, and cultural initiatives
3. Cybersecurity
4. Research and development

Broadband Deployment

High-speed data and Internet access services—or "broadband" services—are being made available to Americans at an unprecedented pace. In fact, it is clear that Internet access is spreading more rapidly than almost any technology in American history. As economist Wayne Leighton pointed out in an August 2001 Cato Institute study, "the latest technologies, including computer use and access to the Internet, are being adopted at a faster rate than technologies of only a generation or two ago."¹³ In fact, according to Leighton, although it took many older technologies decades to reach 50 percent of American homes (telephones took 71 years; electricity took 52; radio took 28), personal computers were available to half of American homes within 19 years of introduction, and Internet access hit that mark in just 10 short years.

Recent government "digital divide" studies by the National Telecommunications Information Association¹⁴ and the Federal Communications Commission¹⁵ have abandoned their once gloomy rhetoric and

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instead begun to spotlight the gains made in Internet access in recent years.¹⁶ For example, the NTIA’s most recent survey noted that the rate of growth of Internet use in the United States is two million new Internet users per month and that more than half of the nation is now online. In September 2001, 143 million Americans (about 54 percent of the population) were using the Internet—an increase of 26 million in 13 months—and 174 million people, or 66 percent of the population, used computers. In addition, 45 percent of the population now uses e-mail, up from 35 percent in 2000. The NTIA study noted that even though 80 percent of Americans access the Internet through dial-up service, residential use of broadband service is rapidly expanding. Between August 2000 and September 2001, residential use of high-speed broadband service doubled—from about 5 to 11 percent of all individuals and from 11 to 20 percent of Internet users.

The latest FCC broadband survey echoes these findings regarding broadband availability. The FCC reports that more than 70 percent of homes have cable modem service; 45 percent have digital subscriber line (DSL) service; 55 percent of Americans have terrestrial fixed wireless broadband options; and almost every American household can purchase satellite-delivered broadband. Another recent survey found that broadband penetration rates are expected to top 35 million households by 2007.¹⁷

Despite these successes, legislators aren’t satisfied with market rates of deployment. Instead, they propose to “encourage” broadband deployment and use with direct spending grants or tax credits, designed to get everyone connected to a fat pipe. Indeed, the list of broadband proposals is lengthy and bears witness to the overweening presumption of the proposals’ sponsors, who believe that political “solutions” are needed to solve a problem that the marketplace is handling quite well on its own.

Some particularly noteworthy examples of broadband pork-barrel spending proposals include the following:

The Broadband Telecommunications Deployment Act of 2002 (S. 2448). Introduced by Senator Ernest “Fritz” Hollings (D-S.C.) largely as a way to derail ongoing broadband deregulation efforts in the Senate,¹⁸ the Broadband Telecommunications Deployment Act would establish a federal “Broadband Deployment and Demand Fund” that would funnel tax dollars to a number of causes in an attempt to jump-start broadband deployment, especially in rural areas. The bill would fund low-interest loans and grants for rural broadband projects and providers; government studies regarding what might help spur broadband deployment; pilot projects for wireless and other alternative broadband technologies in rural areas; grants to government labs and universities to help them deploy extremely high-speed broadband networks; other university grants for studies on useful consumer Internet applications; projects that digitize library and museum collections; e-government grants; and grants to connect underrepresented colleges and communities to the Internet.

The Lieberman broadband plan. In May 2002 Sen. Joseph Lieberman (D-Conn.) released a comprehensive 60-page study, “Broadband: A 21st Century Technology and Productivity Strategy,” which outlined a number of policy initiatives currently working their way through Congress that might impact broadband deployment.¹⁹ The report generally supported greater government involvement in the broadband sector via a host of direct and indirect subsidization efforts. Senator Lieberman also introduced a bill (S. 2582, the National Broadband Strategy Act of 2002) that demanded that the White House develop a national strategy to promote the development and diffusion of broadband services nationwide.²⁰

The Broadband Internet Access Act of 2001 (S. 88 and H.R. 267). Introduced by Sen. John Rockefeller (D-W.V.) and Rep. Phil English (R-Penn.), this bill would create a tax-incentive regime to encourage communications companies to deploy broadband services more rapidly and broadly throughout the

United States. It would offer a 10 to 20 percent tax credit to companies that roll out broadband services to rural communities and “underserved” areas.²¹ The measure is wildly popular on both sides of the aisle and has attracted almost 200 sponsors in the House and more than 60 in the Senate. Although tax credits represent an indirect subsidy, they are still dangerous in that they could be more advantageous to one set of providers or technologies than another and threaten to distort the natural development of markets by channeling investment in unnatural directions. Moreover, tax credits typically invite additional forms of intervention by government to correct distortions caused by previous promotional or regulatory efforts. And beneficiaries of such favors can find themselves subjected to unwanted regulation as “payment.”

The Farm Security and Rural Investment Act of 2002 (S. 1731 and H.R. 2646). The pork-laden “Farm Bill” recently enacted includes a section dealing with rural broadband access. Section 605 amends the Rural Electrification Act of 1936 to provide grants and loans to any entity “able to furnish, improve, or extend a broadband service to an eligible rural community.” To fund those loans and grants, Section 605 authorizes \$100 million per year for fiscal years 2002–2005. Such direct subsidies win points with the agriculture and broadband lobbies, since they would line the pockets of companies and state and local governments looking for a handout.

Congress should realize that overregulation of telecommunications is one of the main hindrances to increased broadband rollout and that handouts in the guise of “incentives” won’t really help farmers or rural communities. Regulatory policy and existing subsidy programs must first be reformed if policymakers want to solve rural telecom and broadband problems. Other tech-related provisions in the Farm Bill, sandwiched between price supports for mohair and various conservation programs, provide funds for promoting rural e-commerce, telecommuting, telemedicine, and telecommunications.

Section 733 supplies funding for establishment of an Office of Rural Electronic Commerce as well as four regional rural development centers, which will provide training, education, and other aid to help small, rural businesses engaged in e-commerce. Section 643 also allocates \$30 million per fiscal year from 2002 to 2006 to fund feasibility studies, planning, development, and implementation of rural telework or telecommuting initiatives and networks as well as the establishment of a Rural Telework Institute to offer assistance.

Digital Education, Civic Participation, and Cultural Initiatives

The history of communications and technology regulation is littered with crusades undertaken in the name of serving the “public interest.” Though it eludes definition, this amorphous concept has spawned innumerable policy directives and spending initiatives. Supreme Court Justice Potter Stewart famously said he couldn’t define obscenity, but he knew it if he saw it; supporters of the Digital New Deal have a similar approach to the “public interest.” This splendidly flexible concept provides an ever-ready rationale by which to regulate one of the biggest sectors of the U.S. economy.

Further, “promoting” cultural and educational initiatives gives Washington policymakers a good feeling and earns points with the public, despite the fact that most of the funds dedicated to such initiatives end up consumed by an ever-expanding bureaucracy. By seeking to address cultural and educational issues through subsidies and mandates, policymakers either succumb to a misguided utopian notion that they can scientifically steer society down a better course or, viewing the matter more cynically, are directing cash back to constituencies with a vague hope of improving education. Civic participation, educational opportunity, and cultural excellence result only when individuals are willing to invest in improving social institutions. Government can best foster such activity by standing aside and allowing private individuals and organizations to work unhampered and not by funneling taxpayer dollars to

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special-interest projects. But, as recent spending proposals (listed below) undertaken to promote Washington's view of the public interest make clear, few policymakers appear capable of exercising such restraint.

Wireless Technology Investment and Digital Dividends Act of 2002 (H.R. 4641). Rep. Ed Markey (D-Mass.) and the other sponsors of the Wireless Technology Investment and Digital Dividends Act have proposed the creation of a federal Digital Dividends Trust Fund, which would use a significant chunk of auction proceeds raised from the sale of broadcast spectrum to spread pork around in assorted ways: teacher and librarian training; R&D programs for "sophisticated content-related educational software and programming designed to enhance learning" in schools and libraries; technology projects undertaken by AmeriCorps and the Corporation for National Service; worker retraining programs; after-school programs and computer literacy initiatives; subsidies to public broadcasters to help them convert their stations to digital TV; rural broadband subsidies; and other "public interest" projects or entities deemed worthy by a board of eight trustees.

Markey's bill embodies elements of the Digital Opportunity Investment Trust ("DO IT") project, the brainchild of a former Public Broadcasting System chairman and a former FCC chairman, who established the Digital Promise project to "halt the encroachment of purely marketplace values upon the missions of our public service institutions." This proposal is really just old wine in a new bottle. DO IT might best be thought of as the fusion of the National Endowment for the Arts, PBS, and the "E-Rate" program (or the "Gore Tax" as it is called by some), which is a federally mandated hidden tax on telephone bills to pay for the wiring of schools and libraries. DO IT and Markey's bill are also unnecessary and redundant. The private sector is already busy providing services such as rapidly updated and competitive educational software offerings, Web-based libraries, and a high-speed broadband rollout. Americans can avail themselves of these materials and

services all the better if Congress returns the proceeds of spectrum auctions to taxpayers and lets families "DO IT" themselves.

The Lieberman broadband plan. Senator Lieberman's previously mentioned report "Broadband: A 21st Century Technology and Productivity Strategy," contains a number of educational applications that it claims increased broadband spending will help establish or make ubiquitous, such as distance learning, teleconferencing, electronic delivery of assignments, online tutoring, and virtual field trips.²² Though the report concedes that "academic-industry partnerships . . . may make legislative incentives less necessary," it doesn't hesitate to mention several legislative efforts that endorse government funding of technology in the classroom, especially broadband.

Furthermore, Lieberman's report favorably mentions a "Federal Broadband Education Initiatives" program that would include National Science Foundation funding for the study of the availability and effective use of broadband technology in the classroom. Many share Senator Lieberman's appreciation of the role of technology in improving education, but using technology pork to spur such advancements is unlikely to produce the desired results. Lieberman also seemingly endows broadband technology with an anthropomorphic ability to accomplish almost anything, as if it were a veritable "silver bullet" solution to many societal woes. While advances in technology have certainly improved and will continue to improve our quality of life, including more effective and educational opportunities, they have come about as a result of private-sector efforts. Government funding of educational technology is likely to result in a misallocation of resources.

E-Rate, or the "Gore Tax." E-Rate is shorthand for "education rate," or the reduced prices for technology and telecommunications services that schools and libraries are eligible for under this program. Championed by former vice president Al Gore, the program was part of the 1996 Telecommunications Act. Initially, the E-Rate program was admin-

istered by a quasi-governmental entity, the Schools and Libraries Corporation, formed by the FCC in May 1997 without the consent of Congress. After questions arose regarding the constitutionality of the corporation, the agency shifted responsibility to an existing nonprofit organization known as the Universal Service Administration Company. The USAC carries out universal service (read: telephone subsidy) programs for the FCC. Although the FCC's sleight of hand lessened constitutional concerns by seemingly shifting management to a private nonprofit group, in reality it was business as usual because the USAC takes its orders from the FCC.

Consequently, the FCC has continued to demand that the E-Rate program be funded through a complex system of industry mandates and hidden taxes to help lower the costs of installing communications and computer technologies in classrooms and libraries. Although the program is administered by private companies and organizations, the FCC has also continued to dictate the amount of annual funding for the program through an annual cap on how much the companies can collect through hidden taxes on telephone bills. The cap is currently set at \$2.3 billion per year. Although the current Congress has not entertained a proposal to expand the E-Rate program, their inaction means it remains a firmly entrenched federal entitlement program that is essentially on autopilot at the FCC. Although Congress has debated adjusting the \$2.3 billion funding cap, no serious reform proposals have been introduced recently.

To the extent that schools and libraries receive public funding for their technology needs, those funds should be incorporated into a formal state budget subject to open debate and a vote by elected legislators at the state level. Unfortunately, the Bush administration has proposed that these reforms take place at the federal level instead of at the state or local level, where education spending decisions should occur. The optimal solution would be to end all federal involvement and allow the states to determine how best to

fund technology programs for the classroom. While the jury is still out regarding the sensibility of increased reliance on technology in the classroom, those educational institutions desiring funds for communications and computing services should petition their state or local leaders for such funding, the same way they would for any other educational tool or technology. Nothing about communications or computing technologies justifies a federal entitlement program while other tools of learning are paid for through state and local budgets.²³

Cybersecurity

The creation of a new Department of Homeland Security is partly intended to eliminate overlap, consolidate agencies, and save money, while better protecting Americans. To the extent that downsizing and streamlining actually occur, it would be a step in the right direction—but the absence of the FBI and the CIA from the reorganization raises serious questions about this initiative.²⁴

Nonetheless, a major goal of the homeland security effort is to enhance “cybersecurity,” that is, to shore up America’s public and private computer networks against any eventual electronic attack by terrorists or even run-of-the-mill hackers. To that end, government-funded cybersecurity research and other initiatives have been proposed. Policymakers also fear that cyber attacks might occur in conjunction with land-based attacks; for example, considerably more chaos would have resulted on September 11 if terrorists had also knocked out air traffic control systems. Of course, cybersecurity warnings are not new. As the Internet became increasingly commercialized, warnings of a “Digital Pearl Harbor” emerged, and they have only grown stronger with the growing awareness of terrorist threats.

Some have claimed that the threat of terrorism has been exploited as a way of securing passage of other pet law enforcement projects.²⁵ Unfortunately, the cybersecurity threat can also be an occasion for shifting to the government the costs of what are or

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should be private-sector responsibilities, such as bolstering corporate networks or hiring and training individuals capable of doing the job. That isn't to deny that sometimes the boundary between the government's role of protection and private entities' security responsibilities can be blurred. In markets, part of the job of protecting private property falls to the owner, and part of the job falls to law enforcement—part to private security guards and part to the police. But in the wake of terrorist attacks, it is tempting to let government assume too much of what is really the private sector's cybersecurity responsibility. That is, is the private sector on the verge of leaving its doors unlocked, expecting the government to take charge? As Jeffrey E. Garten, dean of the Yale School of Management, argued recently in *Business Week*, "As homeland security budgets soar, a new government gravy train could subsidize corporate inefficiencies."²⁶

Nongovernmental options for improving cybersecurity certainly exist and need to be enhanced. Examples include bolstering the security of one's private network or networks; changing software defaults that can leave systems open to intruders; hiring experienced personnel and assuring that all new software security patches are installed; funding private security research; purchasing insurance against attacks; and hiring independent security companies to remotely monitor one's network. Market pressures to enhance cybersecurity have been increasing. In a memo on "Trustworthy Computing" from Bill Gates to his employees, Microsoft has itself called security rather than product development its new primary focus.²⁷ Oracle has initiated an "Unbreakable" campaign to promote its emphasis on security for its software.²⁸ Other proposals would hold network administrators and software makers liable for security breaches (which can be accomplished through private contract). Some have even raised the idea of licensing individual users.²⁹ Such steps as better system administrator training and better licensing of network operators are important, yet govern-

ment doesn't play a central role in such efforts, and it is not clear that government intervention would be a good substitute for private initiative.

In homeland security broadly, much of the push seems to be for indemnification if security companies are sued when their protection devices (like alarms and detectors) fail.³⁰ That smacks of an effort to substitute government responsibility for private responsibility, to socialize what may often be ordinary security functions. In socializing risk inappropriately, one removes the incentives (like liability) that are needed to keep private companies in line, much as having government pick up costs in excess of insurance coverage would do. Likewise, the impact on network security could be the opposite of that intended. Since this is not a direct outlay of "pork," there is no real way to calculate the social costs of inappropriately indemnifying private companies for the failure of their technologies (or of replacing what would have been superior contractual arrangements with such indemnification), but it is something that should be on policymakers' minds.

In the noncyber world, the insurance market largely rebounded from September 11, despite warnings that government would have to serve as insurer of last resort due to the unavailability of terrorism insurance.³¹ Too much government involvement would represent a business handout and bad policy, in that government would crowd out private insurance markets. Those same risks need to be guarded against with respect to cybersecurity. It is the case, however, that information-sharing about security breaches between government and business can make sense, and laws that inhibit the willingness of companies to do that, such as the antitrust laws and the Freedom of Information Act (when it is applied inappropriately to private rather than governmental entities), are being reconsidered.

Broadly speaking, federal, state, and local governments spend about \$90 billion a year on information technology.³² To the extent this spending pertains to government's own computing systems, it is legitimately within

government's purview. However, even assuming that the functions to which government applies these technologies are appropriate to a constitutionally limited republic, \$90 billion seems excessive. Here such spending is largely given the benefit of the doubt. The debate over what government spends on maintenance or upgrading of its own antiquated systems is beyond the scope of this paper, even though such expenditures, which have been boosted in both homeland security legislation and supplemental appropriations legislation, may be questionable and deserve analysis. Rather, the focus here is on pork—that is, substituting government aid for what should be private-sector spending. Apart from the government's computing needs, cybersecurity spending becomes worrisome when it is wasteful or duplicates private-sector efforts already under way—or efforts that would be under way were it not for government's interference.

Agencies spent \$2.7 billion on cybersecurity in fiscal year 2002, largely on securing their own systems. The president's fiscal year 2003 budget requested \$4.2 billion for cybersecurity.³³ Wall Street seems to be licking its chops at this government-provided bounty for companies selling computer security services.³⁴ Other funding proposals seem to indicate that government is treading on private-sector territory. The administration's budget request included \$202 million for a "medical communications infrastructure," \$30 million for the Cyberspace Warning Intelligence Network for early-warning communication between the public and private sectors, and \$60 million for the Priority Wireless Access, to grant emergency overrides on wireless networks for emergency purposes.³⁵ It is a mistake for government to pay for what the private sector would pay for on its own. Government regulation and oversight have little to offer with regard to the development of efficient, secure network arrangements and could instead lead to micro-management, through measures such as mandates for network structure and security requirements on telecommunications and computer networks.

The term cybersecurity can be fluid, just

as can be the broader term "critical infrastructure." Cybersecurity is often discussed as it applies to the Internet, but other systems are also being reexamined under the rubric of cybersecurity, such as electric power and water systems and the computer systems that control them. Physical systems and software systems can require different forms of protection. As for localized information security, one way to avoid cybersecurity problems is to remove sensitive information from the Internet altogether. As for the Internet infrastructure itself, it was designed to withstand nuclear attack, by sending packets of information via alternative routes. As a VeriSign spokesman put it, "The last thing I'd want someone to think is that they could put a bomb around their waist and hug the A root and think they're going to significantly impact the Internet."³⁶

Much of the direct pork for cybersecurity takes the form of grants for research and development as well as education. The following bills contain various measures of cybersecurity "pork," but the list is not meant to be exhaustive:

Cyber Security Research and Development Act (S. 2182). This legislation, introduced by Sen. Ron Wyden (D-Ore.) funds R&D and computer security education and is to be administered by the National Science Foundation. In the first year (2003) alone, it would provide \$35 million for Computer and Network Security Research Grants; \$12 million for Computer and Network Security Research Centers; \$15 million for Computer and Network Security Capacity Building Grants; and \$10 million for Graduate Traineeships in Computer and Network Security Research. But creating a fleet of government-trained Ph.D.s in computer security is not the same as actually bolstering security, and there is no reason the private sector cannot fund the training of its own such personnel—or provide the application-specific training actually needed. This represents pork to the extent that the private sector could fund the training of its own security experts.

Computer Security Enhancement Act of 2001

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The private sector owns the vast majority of Internet infrastructure, and it must carry more of the load for security.

(H.R. 1259). Having already passed the House, this bill represents an effort to enhance the ability of the National Institute of Standards and Technology (an agency within the Commerce Department) to improve computer security. While the NIST would be combined with other Internet security agencies under the homeland security legislation, this bill would authorize over \$1 million annually for fiscal years 2002 and 2003 for identification of emerging issues relating to cryptography and security, and for convening public meetings and issuing reports on these matters. The bill would also authorize \$5 million for those years for NIST to provide fellowships to computer security students. The bill would authorize another \$450,000 for a study of electronic authentication technologies, yet another area in which there is no shortage of private research and potential profit. Separately, a NIST grant of \$6.5 million for research into protecting critical systems recently went to George Mason University and James Madison University.³⁷

Supplemental Appropriations Act for Further Recovery from and Response to Terrorist Attacks on the United States of 2002 (H.R. 4775). President Clinton created the Federal Cyber Service program, under which students receive scholarships for studying computer security and then must serve two years in the federal government. This emergency supplemental bill would expand the program to \$19 million.³⁸ But taxpayer-provided scholarship money has already been extended to many universities, and incentives abound for students to pursue technology careers. Note again that often security problems are not matters of new training but simply of embracing security “best practices” that already exist. This program is one that could easily grow beyond even its current generous bounds: since private-sector salaries are so much higher than those in government, to make the program work, it will likely require even bigger federal salaries for graduates.³⁹

The Critical Infrastructure Protection Grants Program of the NIST. The CIPGP is a relative-

ly new program that funds “research leading to commercial solutions to those information technology security problems central to critical infrastructure protection.”⁴⁰ Critical infrastructure is defined by the CIPGP as industries such as telecommunications, energy, banking and finance, transportation, water systems, and emergency services. Companies or institutions doing research in these sectors can petition the CIPGP for grants to demonstrate how critical infrastructure might be made most robust and resilient. Although the program only passed out \$5 million in grants during fiscal year 2001, it is likely that Congress will increase its budget in the near future.

Homeland Security Act of 2002 (H.R. 5005). Homeland security legislation has passed the House and is pending in the Senate. The House bill indemnifies private companies from liability when security products they’ve developed to fight terrorism fail. The extent to which this provision will apply to “cyber” products is unclear. Having government take over a market role in product certification does not amount to a direct outlay of taxpayer money as “pork.” But it does interfere with private insurance markets and technology research into “fail-safe” products. That can lessen cybersecurity rather than improve it.

Market research firm Computer Economics estimated the cost of digital attacks (such as viruses and worms) at \$13.2 billion.⁴¹ That there is a problem is undeniable. Yet the cybersecurity movement of today is increasingly spearheaded by government, a situation that can end up benefiting some companies at the expense of competition and of computer security itself, if the reliance on government is misplaced. The private sector owns the vast majority of Internet infrastructure, and it must carry more of the load for security, a notion touted by leaders like Richard Clarke, President Bush’s top cybersecurity adviser, who told a gathering of security experts: “If you spend more on coffee than on IT security, then you will be hacked. . . . What’s more, you deserve to be hacked.”⁴² The role of the private sector in cybersecurity training, insurance, and simple vigilance itself must

not be allowed to diminish. A peer-to-peer Internet is one on which “hackerware” can be deployed by anyone, not just terrorists. And the drive to create secure authentication systems, anonymity, secure digital signatures, and better encryption points to the role of the private sector, not government, in spearheading all forms of security research.

Ironically, it’s not apparent that government is capable of leadership even if the interventionist model of cybersecurity were appropriate. A survey by the Business Software Alliance found that more than 70 percent of information technology professionals doubt the ability of governmental network defenses to withstand a cyber attack.⁴³

Research and Development

A final catch-all category of high-tech pork-barrel spending is federal research and development initiatives. In general, federal R&D funding encompasses a vast array of monetary grants to companies, organizations, and educational institutions. Many programs involve grants for communications or cyberspace-related activities.

Many of these grants are premised on specific objectives, such as broadband deployment in rural areas, educational research, or cybersecurity. However, other R&D programs distribute grants for many other purposes and are sometimes difficult to categorize. In particular, several corporate welfare programs within the Department of Commerce offer federal grants for various cyber- or communications-oriented objectives and initiatives:

The Advanced Technology Program of the NIST. The ATP enters into partnerships with private companies and organizations to help defer the costs and risks associated with the development of new technologies “that promise significant commercial payoffs and widespread benefits for the nation.”⁴⁴ Despite that lofty public-minded goal, the ATP website also notes, “ATP projects focus on the technology needs of American industry, not those of government. Research priorities for the ATP are set by industry, based on their understanding of the marketplace and research opportunities.” Many of these grants are

for communications-related initiatives.

The Technologies Opportunities Program. This program gives grants to state, local, and tribal governments; health care providers; schools; libraries; police departments; and community-based nonprofit organizations “for model projects demonstrating innovative uses of network technologies.”⁴⁵ According to the TOP website, “to date, TOP has awarded 530 grants, in all 50 states, Puerto Rico, the District of Columbia, and the U.S. Virgin Islands, totaling \$192.5 million and leveraging \$268 million in local matching funds.”

The Public Telecommunications Facilities Program. This program provides grants to public broadcast stations, state and local governments, Indian tribes, and nonprofit organizations to help them “construct facilities to bring educational and cultural programs to the American public using broadcasting and non-broadcasting telecommunications technologies.”⁴⁶

The Dangers of Cyberpork

The most obvious objections to the spending initiatives outlined above are that they waste tax dollars and lack any constitutional basis. Regrettably, however, fiscal responsibility and adherence to the Constitution ceased to be restraints on the growth of government long ago. Legislators rarely question the fiscal sensibility or constitutional legitimacy of their actions when debating spending programs today. But there are many other important reasons for policymakers to reconsider the wisdom of a federal pork barrel for telecom and high technology.

Never-Ending Lifespan

One obvious problem with high-tech subsidy efforts is that they could lead to a perpetual set of expensive Washington entitlement programs. As Ronald Reagan noted in a 1964 television address, “A government bureau is the nearest thing to eternal life we’ll ever see on this earth.”⁴⁷

Indeed, consider the case of previous indus-

High-tech subsidy efforts could lead to a perpetual set of expensive Washington entitlement programs.

It is virtually an iron law of federal spending programs that what government subsidizes, it also ends up regulating.

try subsidy schemes such as the Rural Electrification Administration. Spawned during the New Deal to electrify America (a task accomplished by the mid-1950s), the REA lives on, albeit with a new name and mission. The REA changed its name to the Rural Utilities Service in 1994 to reflect its expanded mission. Today the RUS is still offering assistance to older utility companies and has broadened its mission to include broadband loans to telecom carriers. And, as noted above, the Farm Bill would expand that mandate to the offering of new technologies.

There are countless other federal programs like the RUS that have outlived their original mandate or mission many times over. Many of programs in existence or being proposed today, such as the E-Rate program or the Digital Opportunities Investment Trust, are just as likely to expand through mission creep.

Slippery Slope to More Regulation

It is virtually an iron law of federal spending programs that what government subsidizes, it also ends up regulating. Consider the histories of agriculture, wireline telecommunications, electricity and energy, and railroads. Subsidies and regulation went (and still go) hand in hand. Government assistance often leads to increased industry scrutiny, largely because politicians are interested in seeing if their promotional efforts are paying off. When they realize they are not, or become frustrated with the slow pace of change, more direct forms of regulation ensue, such as price controls, quality regulation, and entry and exit controls. The high-tech sector would be wise to remember the adage that a government powerful enough to give you everything you want is also powerful enough to take it all away.

Displacement of Private-Sector Efforts and Risk of Technological Favoritism

Government spending may encourage market distortion by skewing investment decisions and substituting the will of bureaucrats for that of entrepreneurs and consumers. Although government programs

may waste billions of taxpayer dollars each year, their indirect effects can cost consumers far more by hindering or distorting emerging technologies or industries. Furthermore, intervention may promote one set of technologies or class of providers at the expense of others.

For example, traditional FCC “universal service” subsidization efforts have been preoccupied with the extension of wireline service to all Americans. Toward that end, throughout the past century, federal and state universal service subsidies have encouraged the laying of wires in certain geographic areas where wireless options would have been far more economically efficient (and probably much cheaper to subsidize). To this day, the FCC funnels telephone subsidies to wireline providers who are considered the “carriers of last resort” despite the existence of ubiquitous nationwide cellular networks.

Similarly, many of the newly proposed broadband subsidy schemes propose to “wire America” once again with newer and faster types of communications links. But does this make sense when wireless technologies exist and might prove more cost-effective over time? This is not an argument for an industry policy favoring wireless providers and technologies, but a warning about the unintended consequences of providing tax credits or direct subsidies at a time when wireline providers and technologies are likely to be the politically favored technology in the short term.

Finally, intervention might create perverse incentives for private companies or individuals to do the wrong thing. In the cybersecurity arena, government coverage of insurance is a good example. Private actors need to bear the risk of their own negligence.

Subsidy Programs Are Unnecessary in Today’s Marketplace

As was made clear in the NTIA and FCC reports cited above, the marketplace is already fulfilling consumers’ technology needs. In an environment of rapidly proliferating consumer choices, policymakers

should exercise patience and allow the deployment process to play out naturally. With some of these markets still in a nascent stage, it is impossible to accurately gauge demand for many digital technologies or communications and broadband services.

For example, the FCC has noted that, despite increasing availability, broadband subscribership remains sluggish, since “cost appears to be closely associated with the number of consumers willing to subscribe to advanced services.”⁴⁸ It cites one private-sector survey revealing that 30 percent of online customers were willing to pay \$25 per month for broadband but only 12 percent were willing to pay \$40. Most broadband services currently cost \$40 to \$50 per month on top of installation costs.

That suggests that many Americans still view broadband as the luxury good it really is instead of the life necessity that some policy-makers paint it to be. Not every American needs, or even necessarily wants, a home computer or a connection to the Internet. This is especially the case for elderly households and households without children. Regardless, even if more Americans desire broadband services but cannot afford them, it is not the role of government to guarantee cheap bandwidth as a birthright entitlement for every man, woman, and child in America.

Moreover, if government were to directly subsidize individuals or households to stimulate demand or guarantee a certain basic level of broadband service, policymakers might not like the uses to which that broadband is put. Although many people (especially policymakers) are not comfortable talking about it, the two most successful broadband “killer applications” so far have been Napster and pornography. Like it or not, the illegal swapping of copyrighted music and the downloading of pornography have probably done more to encourage broadband subscription than any other online application thus far. While politicians work hard to rid the world of online file-sharing and porn, they may actually be eliminating the only two services with enough appeal to convince con-

sumers to take the broadband plunge. In any event, it would be foolish for legislators to justify broadband subsidies as a method of improving education or bettering our culture when, in fact, it is clear that many if not most Americans treat broadband and the Internet more as just another entertainment tool.

The Politicization of the Cyber Sector

Perhaps the leading argument against the creation of a Digital New Deal is that by inviting the feds to act as a market facilitator, the industry runs the risk of becoming more politicized over time. The risk exists that the cyber sector could become the next broadcast industry, always looking toward Washington for signals of what to do next, and lobbying for favorable policies that exclude rivals or increase handouts in exchange for significant campaign contributions.⁴⁹

Indeed, this is already happening today. Tech sector companies are becoming more comfortable in Washington circles as they open up D.C. lobbying offices and begin spreading cash around to candidates for office in the hope of courting favor and prevailing in policy debates. The real danger inherent in this process is that high-tech companies will become more concerned about serving bureaucrats inside the Beltway than customers in the marketplace.

Some pundits claimed that the Microsoft Corporation would never have had its problems with antitrust authorities if it had set up shop in Washington much sooner and spread campaign dollars around to the right people. The not-so-hidden moral: If high-tech firms learn how to play “the Washington game” and spread money around to enough politicians and special interest groups, they might be able to evade the hammer of big government. Worse yet, as companies learn to play this game and get good at it, they find ways to increasingly rig the system in their favor and turn the attention of the regulatory community on their rivals in an attempt to hamstring competition. The lamentable history of the American telecommunications sector provides numerous examples of such political

The real danger inherent in this process is that high-tech companies will become more concerned about serving bureaucrats inside the Beltway than customers in the marketplace.

The high-tech sector should think twice before entering into a pact with Washington.

warfare and its disturbing consequences.⁵⁰

Perhaps this explains why T. J. Rodgers, president and CEO of Cypress Semiconductor, has cautioned the high-tech industry about “normalizing relations” with Washington, D.C. As Rodgers says: “Government can do only two things . . . take our money, limiting our resources; or pass laws, limiting our other freedoms. Even in Washington, alluring subsidies come at a high cost to our industry. Washington’s money is never free.”⁵¹

Conclusion

The digital sector is clearly struggling today. The “dot-com deathwatch” continues and has already claimed many notable Internet innovators like Kozmo.com, Webvan, and Pets.com. Likewise, the telecom sector has been in a freefall for the past two years as once-proud giants like Global Crossing and WorldCom have gone the way of the dinosaur.

In the midst of this calamity, calls for government intervention have been increasing. An extensive communications policy regulatory apparatus already exists that some policymakers want to tap or expand to supposedly help solve the problems. And many hope to add massive entitlements and promotional efforts. Although the goal of this effort has

not been explicitly stated or carefully organized, the inference remains clear: The high-tech sector is capable of being scientifically calibrated and directed by using an array of federal regulatory and promotional tools. But that just is not so.

Intervention will cause more problems than it will solve. Many of the problems the telecom sector faces can be directly traced to a history of misguided regulatory interventions. More recently, the Internet sector has been threatened with an array of regulations, from content restrictions to intellectual property mandates to burdensome privacy policies.⁵² And yet—seemingly oblivious to the potential harm such regulation might pose—policy-makers seem equally determined to shower this sector with monetary assistance when things go wrong. With one hand the government giveth, and with the other it taketh away.

Before going down this path any further, officials, workers, investors, and consumers in the digital sector should ask themselves if they want their future to be so closely tied to the whims of federal legislators and regulators. The high-tech sector should think twice before entering into a pact with Washington. In the short term, the allure of a Digital New Deal and its corresponding shower of subsidies and government attention may seem too good to pass up, but there’ll be hell to pay once the honeymoon is over.

Appendix A Existing Technology Spending Programs

Program	Agency	Description	Cost (FY2002 est., unless otherwise noted)
Technology Opportunities Program	National Telecommunications Information Administration, Department of Commerce	Grants for model telecom technologies, especially in rural communities	\$12.4 million
Public Telecom Facilities, Planning and Construction	National Telecommunications Information Administration, Department of Commerce	Assistance in planning, acquisition, installation, and modernization of public telecom facilities	\$41.11 million
Grants for Public Works and Economic Development	Economic Development Administration, Department of Commerce	Construction of public facilities and infrastructure, including broadband deployment	\$250 million
Rural Telephone Loans and Guarantees	Rural Utilities Service, Department of Agriculture	Long-term direct and guaranteed loans to finance and improve telephone and telecom service	\$75 million (hardship loans); \$300 million (cost of money loans); \$120 million (Farmers First Bank Treasury loans)
Rural Telephone Bank Loans	Rural Utilities Service, Department of Agriculture	Supplemental financing to extend and improve telecom in rural areas	\$175 million
Distance Learning and Telemedicine Loans and Grants	Rural Utilities Service, Department of Agriculture	Loans and grants to rural community facilities for health care and educational telecom systems	\$30 million (grants); \$300 million (loans)
Community Tech Centers	Office of Vocational and Adult Education, Department of Education	Access to computers and educational technology for urban and rural low-income communities	\$64.95 million (FY2001)
Tech Literacy Challenge Fund Grants	Office of Elementary and Secondary Education, Department of Education	Grants to state education agencies for the development of educational IT	\$450 million (FY2001)

continued

Program	Agency	Description	Cost (FY2002 est., unless otherwise noted)
Tech Innovation Challenge Grants	Office of Assistant Secretary for Educational Research and Improvement, Department of Education	Support for all aspects of effective educational technology infrastructure	\$136.33 million (FY2001)
Star Schools	Office of Assistant Secretary for Educational Research and Improvement, Department of Education	Grants to telecom partnerships for educational activities and infrastructure	\$59.32 million (FY2001)
Telecom Demonstration Project for Mathematics	Office of Assistant Secretary for Educational Research and Improvement, Department of Education	National telecom-based demonstration project to improve the teaching of mathematics	\$8.5 million (FY2001)
Regional Technical Support and Professional Development Consortia	Office of Assistant Secretary for Educational Research and Improvement, Department of Education	Subsidies for the use of advanced technologies in public education at the state and local levels	\$10 million (FY2001)
Tech and Media Services for Individuals with Disabilities	Office of Special Education and Rehabilitative Services, Department of Education	Support for development and application of technology for the disabled	\$31.71 million
Rural Telemedicine Grants	Health Resources and Services Administration, Department of Health and Human Services	Development of rural, integrated health care networks	\$5.2 million
Medical Library Assistance	National Library of Medicine, National Institutes of Health, Department of Health and Human Services	Funds for professional personnel training; strengthening library and information services; facilitating access to and delivery of health science information; planning and developing advanced information networks; etc.	\$24.23 million
State Library Program	Office of Library Services, Institute of Museum and Library Services, National Foundation on the Arts	Grants to state library administrative agencies for promotion of library services that provide all users access to	\$148.94 million

continued

Program	Agency	Description	Cost (FY2002 est., unless otherwise noted)
	and Humanities	information through state, regional, and international electronic networks	
Native American Library Services	Office of Library Services, Institute of Museum and Library Services, National Foundation on the Arts and Humanities	Supports library services including electronically linking libraries to networks	\$2.94 million
Denali Commission Program	Denali Commission	Provides grants through a federal and state partnership designed to provide critical infrastructure and utilities throughout Alaska, particularly in distressed communities	\$49 million
Cybercorps (Federal Cyber Service)	National Science Foundation	Awards to qualified institutions to provide scholarships to U.S. undergraduate and graduate students studying information assurance and computer security	\$11 million (President Bush has asked for another \$10 million)

Source: Leonard G. Kruger, "Broadband Internet Access and the Digital Divide: Federal Assistance Programs," *CRS Report for Congress*, Congressional Research Service, updated May 10, 2002, Table 1.

Appendix B

New Technology Spending Legislation

(as of September 9, 2002)

Legislation	Description	Cost	Current Status
H.R. 1—No Child Left Behind Act of 2001	Provides grants to schools to acquire high-tech equipment and train teachers and students to use this equipment in the classroom	More than \$100 million in grants	Became Public Law No. 107-110, 1/8/2002
H.R. 100—National Science Education Act	Provides funds for studies determining how effective technology is in the classroom, for the Digital Library, and for technical training	\$56.3 million from FY2002 to FY2004	Received in the Senate; read twice and referred to the Committee on Health, Education, Labor, and Pensions, 7/31/2001
H.R. 267—Broadband Internet Access Act of 2001	Provides 5-year tax credits of 10 or 20% to companies investing in broadband equipment	Unknown	Referred to the House Committee on Ways and Means, 1/30/2001
H.R. 340—Excellence and Accountability in Education Act	Funds programs to provide technology training to students and communities in the U.S. and its protectorates	Potentially billions	House Committee Hearings held, 3/29/2001
H.R. 1012—Telework Tax Incentive Act	Provides a \$500 per teleworking employee per year tax credit to employers	Unknown	Referred to the House Committee on Ways and Means, 3/13/2001
H.R. 1171/S. 500—Universal Service Support Act	Removes caps on the amount of funds that rural telephone service providers may receive from the universal service fund in order to promote rural high-speed Internet access	Unknown	Referred to the House Subcommittee on Telecommunications and the Internet, 4/2/2001

continued

Legislation	Description	Cost	Current Status
H.R. 1188—21st Century Teacher Training Act of 2001	Provides grants and tax credits for teacher training and computer donations to public schools and libraries	Unknown	Referred to the House Subcommittee on 21st Century Competitiveness, 5/8/2001
H.R. 1415—Technology Bond Initiative of 2001	Provides income tax credits to holders of bonds financing the deployment of broadband technologies	Limited to \$100 million per year from 2002 to 2006	Referred to the House Committee on Ways and Means, 4/4/2001
H.R. 1416—Broadband Expansion Grant Initiative of 2001	Funds Department of Commerce grants and loan guarantees for private-sector broadband deployment in rural areas	\$100 million	Referred to the House Subcommittee on Telecommunications and the Internet, 4/25/2001
H.R. 1472—National Science Foundation Authorization Act of 2001	Funds the NSF in order to purchase high-tech research equipment and pay for research, including technological education	Over \$2 billion from FY2002 to FY2005	Referred to the House Subcommittee on Research, 4/13/2001
H.R. 1614—Education Reform Act	Provides grants for the planning and development of technology-enhanced curricula and programs, distance learning programs, and telecommunications demonstrations and installation	\$330 million from FY2001 to FY2002 and "such sums as may be necessary" in succeeding years	Referred to the House Subcommittee on Education Reform, 6/27/2001
H.R. 1693/H.R.1858—Science Education for the 21st Century Act	Funds the National Science Foundation and other federal agencies to conduct broadband demonstrations in schools and to study broadband network access in schools and libraries	\$30 million from FY2002 to FY2004	Referred to the House Subcommittee on 21st Century Competitiveness, 7/20/2001
H.R. 1697/H.R. 2120—Broadband	Funds a loan program, administered by the	\$3 billion	Referred to the House Subcommittee on

continued

Legislation	Description	Cost	Current Status
Competition and Incentives Act of 2001	Department of Justice, to finance broadband deployment in rural and low-income areas		Telecommunications and the Internet, 6/25/2001
H.R. 1835—"To amend the Internal Revenue Code of 1986 to exclude from gross income computers and Internet access provided by an employer for the personal use of employees"	Amends the Internal Revenue Code of 1986 to exclude from gross income computers and Internet access provided by an employer for the personal use of employees	Unknown	Referred to the House Committee on Ways and Means, 5/15/2001
H.R. 1858/S. 1262—National Mathematics and Science Partnerships Act	Funds teacher and student technology training, establishment of a Digital Library, and the use of technology in math and science education	At least \$1.5 billion from FY2002 to FY2006	Received in the Senate, read twice and referred to the Committee on Health, Education, Labor, and Pensions, 7/31/2001
H.R. 2038/S. 966—Rural Broadband Enhancement Act	Gives the Rural Utilities Service in consultation with the National Telecommunications and Information Administration new authority to make loans for broadband deployment in rural areas	Up to \$3 billion in loans and credit extensions	Referred to the House Subcommittee on Telecommunications and the Internet, 6/8/2001
H.R. 2139—Rural America Broadband Deployment Act	Authorizes the Secretary of Agriculture to make loans for broadband deployment in rural areas	\$300 million from FY2002 to FY2004	Referred to the House Subcommittee on Telecommunications and the Internet, 6/25/2001
H.R. 2401—Rural America Digital Accessibility Act	Provides for grants, loans, research, and tax credits to promote rural broadband deployment	\$100 million (grants and loans); \$25 million (National Science Foundation funding)	Referred to the House Subcommittee on Telecommunications and the Internet, 7/16/2001
H.R. 2597—Broadband Deployment and Telework Incentive	Allows taxpayer deductions for purchase of broadband equipment and provides tax credits	Unknown	Referred to the House Committee on Ways and Means, 7/23/2001

continued

Legislation	Description	Cost	Current Status
Act	to providers of next-generation broadband service		
H.R. 2646/S. 1731—Farm Security and Rural Investment Act of 2002	Expands and enhances rural e-commerce; fund rural telework initiatives; provides broadband loans and guarantees	\$640 million from FY2002 to FY2007	Became Public Law 107-171, 5/13/ 2002
H.R. 2669—Rural Telecommunications Enhancement Act	Authorizes the Secretary of Agriculture to make loans and grants to improve access to telecommunications and Internet services in rural areas	\$5 billion	Referred to the House Subcommittee on Telecommunications and the Internet, 8/10/2001
H.R. 2847—Rural America Technology Enhancement Act of 2001	Provides tax credits for broadband facilities development; rural area broadband support through the Universal Service Fund; loans from the Rural Utilities Service	More than \$3 billion	Referred to the House Subcommittee on 21st Century Competitiveness, 12/3/2001
H.R. 3090—Economic Security and Recovery Act of 2001 (a.k.a., Job Creation and Worker Assistance Act of 2002)	Provides tax credits of 10-20% for rural broadband service	Unknown	Became Public Law No. 107-147, 3/9/2002
H.R. 3130—Undergraduate Science, Mathematics, Engineering, and Technology Education Improvement Act	Authorizes National Science Foundation grants to undergraduate institutions and other organizations for technology and education	At least \$260 million from FY2003 to FY2007	Received in the Senate; read twice and referred to the Committee on Health, Education, Labor, and Pensions, 7/11/2002
H.R. 3672—Research on High-Performance Networking for Science Education Act	Funds research to develop novel uses and to evaluate the effectiveness of high-performance computer networks in elementary and secondary schools	\$30 million from FY2003 to FY2005	Referred to the House Subcommittee on Research, 2/11/2002

continued

Legislation	Description	Cost	Current Status
H.R. 4641—Wireless Technology Investment and Digital Dividends Act of 2002	Uses spectrum auction revenue to subsidize broadband deployment in rural or underserved areas and many other programs	\$300 million	Referred to the House Subcommittee on Telecommunications and the Internet, 5/17/2002
H.R. 4664—National Science Foundation Authorization Act of 2002	Networking and information technology research at the National Science Foundation	More than \$1.4 billion from FY2003 to FY2004 and an unspecified amount for FY 2005	Received in the Senate; read twice and referred to the Committee on Health, Education, Labor, and Pensions, 6/6/2002
S. 7—Educational Excellence for All Learners Act of 2001	Provides grants for teacher training in technology, outfitting schools with high-tech equipment, etc.	Unknown	Read twice and referred to the Senate Committee on Health, Education, Labor, and Pensions, 1/22/2001
S. 88—Broadband Internet Access Act of 2001	10-20% tax credits for rural or low-income broadband service	Unknown	Read twice and referred to the Senate Committee on Finance, 1/22/2001
S. 150—Broadband Deployment Act of 2001	10% tax credit to companies investing in broadband equipment to serve low-income areas	Unknown	Read twice and referred to the Senate Committee on Finance, 1/23/2001
S. 426—Technology Bond Initiative of 2001	Provides tax credit to holders of bonds financing broadband deployment	Unknown	Read twice and referred to the Senate Committee on Finance, 3/1/2001
S. 428—Broadband Expansion Grant Initiative of 2001	Authorizes grants and loan guarantees from the Department of Commerce for private-sector broadband deployment in rural area	\$100 million	Read twice and referred to the Senate Committee on Commerce, Science, and Transportation, 3/1/2001
S. 430—Broadband Rural Research Investment Act of 2001	Authorizes the National Science Foundation to fund research on broadband services in rural areas	\$25 million	Read twice and referred to the Senate Committee on Commerce, Science, and Transportation, 3/1/2001
S. 500—Universal Service Support Act	Removes caps on the amount of funds that rural telephone service	Unknown	Read twice and referred to the Senate Committee on Commerce, Science,

continued

Legislation	Description	Cost	Current Status
	providers may receive from the universal service fund in order to promote rural high-speed Internet access		and Transportation, 3/8/2001
S. 521/H.R. 1012— Telework Tax Incentive Act	Provides a \$500 per teleworking employee per year tax credit to employers	Unknown	Read twice and referred to the Senate Committee on Finance, 3/13/2001
S. 761—Native American Telecommunications Improvement and Value Enhancement Act	Authorizes the Rural Utilities Service to make low-interest loans to tribes or tribal groups working with telecom providers to install telephone or wireless services	\$1 billion	Read twice and referred to the Senate Committee on Indian Affairs, 4/24/2001
S. 803-E— Government Act of 2001	Creates a host of government technology initiatives, including funding community technology centers	Unknown	Referred to the House Committee on Government Reform, 7/8/2002
S. 966—Rural Broadband Enhancement Act	Gives the Rural Utilities Service in consultation with the National Telecommunications and Information Administration new authority to make loans for broadband deployment in rural areas	Up to \$3 billion in loans and credit extensions	Read twice and referred to the Senate Committee on Commerce, Science, and Transportation, 5/25/2001
S. 1056—Community Telecommunications Planning Act of 2001	Authorizes the Secretaries of Commerce, Agriculture, and Education to make grants to rural and underserved areas for broadband feasibility/assessment plans	\$25 million (Department of Commerce); \$25 million (Department of Agriculture); \$10 million (Dept. of Education)	Read twice and referred to the Senate Committee on Commerce, Science, and Transportation, 6/14/2001
S. 1262—National	Funds teacher and	More than \$1.6 billion	Read twice and referred

continued

Legislation	Description	Cost	Current Status
Mathematics and Science Partnerships Act	student technology training, establishment of a Digital Library, and the use of technology in math and science education	from FY2002-FY2006, mostly in the form of appropriations to the National Science Foundation	to the Senate Committee on Health, Education, Labor, and Pensions, 7/27/2001
S. 1549—Technology Talent Act of 2001	Authorizes National Science Foundation grants to undergraduate institutions to improve and increase their technology-related degree programs	\$25 million for FY2002	Read twice and referred to the Senate Committee on Health, Education, Labor, and Pensions, 10/15/2001
S. 1571—Farm and Ranch Equity Act of 2001	Sec. 602 authorizes the Secretary of Agriculture to make loans and grants to entities providing broadband service to rural areas	“There are authorized to be appropriated such sums as are necessary to carry out this title”	Read twice and referred to the Senate Committee on Agriculture, Nutrition, and Forestry, 10/18/2001
S. 1731—Agriculture, Conservation, and Rural Enhancement Act of 2001	Authorizes the Secretary of Agriculture to make loans and grants to firms providing rural broadband service	At least \$175.6 million	Returned to Senate Calendar, 2/13/2002
S. 2448—Broadband Telecommunications Deployment Act of 2002	Creates a trust fund from telephone excise tax revenues to finance grants and loans for stimulating broadband deployment	\$10.81 billion from FY2002 to FY2007	Read twice and referred to the Senate Committee on Commerce, Science, and Transportation, 5/2/2002
S. 2551—2002 Supplemental Appropriations Act for Further Recovery from and Response to Terrorist Attacks on the United States	National Institute of Standards and Technology cybersecurity initiative and National Science Foundation emergency expenses to respond to emergent needs in cyber security	\$40 million (NIST); \$19.3 million (NSF)	Senate incorporated this measure in H.R. 4775 as an amendment, 6/3/2002

continued

Legislation	Description	Cost	Current Status
S. 2817—National Science Foundation Doubling Act	Authorizes NSF spending for an information technology research program to encourage “competitive, merit-based proposals for research, education, and infrastructure support in areas related to cybersecurity, terascale computing systems, software, networking”	Unknown	Referred to Senate Committee on Health, Education, Labor, and Pensions; ordered to be reported with an amendment in the nature of a substitute favorably, 9/5/2002

Source: Compiled from THOMAS, [www:thomas.loc.gov](http://www.thomas.loc.gov), and *National Journal's* “Technology Daily Bill Status,” www.nationaljournal.com/pubs/techdaily/briefroom/billstatus/index.htm.

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