

106TH CONGRESS  
2D SESSION

# S. 2046

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## IN THE HOUSE OF REPRESENTATIVES

SEPTEMBER 22, 2000

Referred to the Committee on Science, and in addition to the Committee on Commerce, the Committee on Resources and the Committee on Agriculture, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

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## AN ACT

To reauthorize the Next Generation Internet Act, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Federal Research In-  
5 vestment Act”.

1 **TITLE I—FEDERAL RESEARCH**  
2 **INVESTMENT**

3 **SEC. 101. GENERAL FINDINGS REGARDING FEDERAL IN-**  
4 **VESTMENT IN RESEARCH.**

5 (a) VALUE OF RESEARCH AND DEVELOPMENT.—The  
6 Congress makes the following findings with respect to the  
7 value of research and development to the United States:

8 (1) Federal investment in research has resulted  
9 in the development of technology that has saved lives  
10 in the United States and around the world.

11 (2) The research and development investment  
12 across all Federal agencies has been effective in cre-  
13 ating technology that has enhanced the American  
14 quality of life.

15 (3) The Federal investment in research and de-  
16 velopment conducted or underwritten by both mili-  
17 tary and civilian agencies has produced benefits that  
18 have been felt in both the private and public sector.

19 (4) Discoveries across the spectrum of scientific  
20 inquiry have the potential to raise the standard of  
21 living and the quality of life for all Americans.

22 (5) Science, engineering, and technology play a  
23 critical role in shaping the modern world.

24 (6) Studies show that about half of all United  
25 States post-World War II economic growth is a di-

1 rect result of technical innovation; science, engineer-  
2 ing, and technology contribute to the creation of new  
3 goods and services, new jobs and new capital.

4 (7) Technical innovation is the principal driving  
5 force behind the long-term economic growth and in-  
6 creased standards of living of the world's modern in-  
7 dustrial societies. Other nations are well aware of  
8 the pivotal role of science, engineering, and tech-  
9 nology, and they are seeking to exploit it wherever  
10 possible to advance their own global competitiveness.

11 (8) Federal programs for investment in re-  
12 search, which lead to technological innovation and  
13 result in economic growth, should be structured to  
14 address current funding disparities and develop en-  
15 hanced capability in States and regions that cur-  
16 rently are underrepresented in the national science  
17 and technology enterprise.

18 (b) STATUS OF THE FEDERAL INVESTMENT.—The  
19 Congress makes the following findings with respect to the  
20 status of the Federal investment in research and develop-  
21 ment activities:

22 (1) Civilian research and development expendi-  
23 tures reached their pinnacle in the mid-1960s due to  
24 the Apollo Space program, declining for several  
25 years thereafter. Despite significant growth in the

1 late 1980s and early 1990s, these expenditures, in  
2 constant dollars, have not returned to the levels of  
3 the 1960s.

4 (2) Fiscal realities now challenge Congress and  
5 the President to steer the Federal Government's role  
6 in science, engineering, and technology in a manner  
7 that ensures a prudent use of limited public re-  
8 sources. There is both a long-term problem—ad-  
9 dressing the ever-increasing level of mandatory  
10 spending—and a near-term challenge—apportioning  
11 a dwindling amount of discretionary funding to an  
12 increasing range of targets in science, engineering,  
13 and technology. This confluence of increased na-  
14 tional dependency on technology, increased targets  
15 of opportunity, and decreased fiscal flexibility has  
16 created a problem of national urgency. Many indica-  
17 tors show that more funding for science, engineer-  
18 ing, and technology is needed but, even with in-  
19 creased funding, priorities must be established  
20 among different programs. The United States can-  
21 not afford the luxury of fully funding all deserving  
22 programs.

1 **SEC. 102. SPECIAL FINDINGS REGARDING HEALTH-RE-**  
2 **LATED RESEARCH.**

3 The Congress makes the following findings with re-  
4 spect to health-related research:

5 (1) **HEALTH AND ECONOMIC BENEFITS PRO-**  
6 **VIDED BY HEALTH-RELATED RESEARCH.**—Because  
7 of health-related research, cures for many debili-  
8 tating and fatal diseases have been discovered and  
9 deployed. At present, the medical research commu-  
10 nity is on the cusp of creating cures for a number  
11 of leading diseases and their associated burdens. In  
12 particular, medical research has the potential to de-  
13 velop treatments that can help manage the esca-  
14 lating costs associated with the aging of the United  
15 States population.

16 (2) **FUNDING OF HEALTH-RELATED RE-**  
17 **SEARCH.**—Many studies have recognized that clinical  
18 and basic science are in a state of crisis because of  
19 a failure of resources to meet the opportunity. Con-  
20 sequently, health-related research has emerged as a  
21 national priority and has been given significantly in-  
22 creased funding by Congress in both fiscal year  
23 1999 and fiscal year 2000. In order to continue ad-  
24 dressing this urgent national need, the pattern of  
25 substantial budgetary expansion begun in fiscal year  
26 1999 should be maintained.

1           (3) INTERDISCIPLINARY NATURE OF HEALTH-  
2 RELATED RESEARCH.—Because all fields of science  
3 and engineering are interdependent, full realization  
4 of the Nation’s historic investment in health will de-  
5 pend on major advances both in the biomedical  
6 sciences and in other science and engineering dis-  
7 ciplines. Hence, the vitality of all disciplines must be  
8 preserved, even as special considerations are given to  
9 the health research field.

10 **SEC. 103. ADDITIONAL FINDINGS REGARDING THE LINK BE-**  
11 **TWEEN RESEARCH AND TECHNOLOGY.**

12 The Congress makes the following findings:

13           (1) FLOW OF SCIENCE, ENGINEERING, AND  
14 TECHNOLOGY.—The process of science, engineering,  
15 and technology involves many steps. The present  
16 Federal science, engineering, and technology struc-  
17 ture reinforces the increasingly artificial distinctions  
18 between basic and applied activities. The result too  
19 often is a set of discrete programs that each support  
20 a narrow phase of research or development and are  
21 not coordinated with one another. The Government  
22 should maximize its investment by encouraging the  
23 progression of science, engineering, and technology  
24 from the earliest stages of research up to a pre-com-  
25 mercialization stage, through funding agencies and

1 vehicles appropriate for each stage. This creates a  
2 flow of technology, subject to merit review at each  
3 stage, so that promising technology is not lost in a  
4 bureaucratic maze.

5 (2) EXCELLENCE IN AMERICAN UNIVERSITY  
6 RESEARCH INFRASTRUCTURE.—Federal investment  
7 in science, engineering, and technology programs  
8 must foster a close relationship between research  
9 and education. Investment in research at the univer-  
10 sity level creates more than simply world-class re-  
11 search. It creates world-class researchers as well.  
12 The Federal strategy must continue to reflect this  
13 commitment to a strong geographically-diverse re-  
14 search infrastructure. Furthermore, the United  
15 States must find ways to extend the excellence of its  
16 university system to primary and secondary edu-  
17 cational institutions and to better utilize the commu-  
18 nity college system to prepare many students for vo-  
19 cational opportunities in an increasingly technical  
20 workplace.

21 (3) COMMITMENT TO A BROAD RANGE OF RE-  
22 SEARCH INITIATIVES.—An increasingly common  
23 theme in many recent technical breakthroughs has  
24 been the importance of revolutionary innovations  
25 that were sparked by overlapping of research dis-

1       ciplines. The United States must continue to encour-  
2       age this trend by providing and encouraging oppor-  
3       tunities for interdisciplinary projects that foster col-  
4       laboration among fields of research.

5               (4) PARTNERSHIPS AMONG INDUSTRY, UNIVER-  
6       SITIES, AND FEDERAL LABORATORIES.—Each of  
7       these contributors to the national science and tech-  
8       nology delivery system has special talents and abili-  
9       ties that complement the others. In addition, each  
10      has a central mission that must provide their focus  
11      and each has limited resources. The Nation’s invest-  
12      ment in science, engineering, and technology can be  
13      optimized by seeking opportunities for leveraging the  
14      resources and talents of these three major players  
15      through partnerships that do not distort the mis-  
16      sions of each partner. For that reason, Federal dol-  
17      lars are wisely spent forming such partnerships.

18 **SEC. 104. MAINTENANCE OF FEDERAL RESEARCH EFFORT;**

19                               **GUIDING PRINCIPLES.**

20               (a) MAINTAINING UNITED STATES LEADERSHIP IN  
21      SCIENCE, ENGINEERING, AND TECHNOLOGY.—It is im-  
22      perative for the United States to nurture its superb re-  
23      sources in science, engineering, and technology carefully  
24      in order to maintain its own globally competitive position.



1 (b) GUIDING PRINCIPLES.—Federal research and de-  
2 velopment programs should be conducted in accordance  
3 with the following guiding principles:

4 (1) GOOD SCIENCE.—Federal science, engineer-  
5 ing, and technology programs include both knowl-  
6 edge-driven science together with its applications,  
7 and mission-driven, science-based requirements. In  
8 general, both types of programs must be focused,  
9 peer- and merit-reviewed, and not unnecessarily du-  
10 plicative, although the details of these attributes  
11 must vary with different program objectives.

12 (2) FISCAL ACCOUNTABILITY.—The Congress  
13 must exercise oversight to ensure that programs  
14 funded with scarce Federal dollars are well man-  
15 aged. The United States cannot tolerate waste of  
16 money through inefficient management techniques,  
17 whether by Government agencies, by contractors, or  
18 by Congress itself. Fiscal resources would be better  
19 utilized if program and project funding levels were  
20 predictable across several years to enable better  
21 project planning; a benefit of such predictability  
22 would be that agencies and Congress can better ex-  
23 ercise oversight responsibilities through comparisons  
24 of a project's and program's progress against care-

1 fully planned milestones and international bench-  
2 marks.

3 (3) PROGRAM EFFECTIVENESS.—The United  
4 States needs to make sure that Government pro-  
5 grams achieve their goals. As the Congress crafts  
6 science, engineering, and technology legislation, it  
7 must include a process for gauging program effec-  
8 tiveness, selecting criteria based on sound scientific  
9 judgment and avoiding unnecessary bureaucracy.  
10 The Congress should also avoid the trap of meas-  
11 uring the effectiveness of a broad science, engineer-  
12 ing, and technology program by passing judgment  
13 on individual projects. Lastly, the Congress must  
14 recognize that a negative result in a well-conceived  
15 and executed project or program may still be criti-  
16 cally important to the funding agency.

17 (4) CRITERIA FOR GOVERNMENT FUNDING.—  
18 Program selection for Federal funding should con-  
19 tinue to reflect the Nation's 2 traditional research  
20 and development priorities: (A) basic, scientific, and  
21 technological research that represents investments in  
22 the Nation's long-term future scientific and techno-  
23 logical capacity, for which Government has tradition-  
24 ally served as the principal resource; and (B) mis-  
25 sion research investments, that is, investments in re-

1 search that derive from necessary public functions,  
2 such as defense, health, education, environmental  
3 protection, all of which may also raise the standard  
4 of living, which may include pre-commercial, pre-  
5 competitive engineering research and technology de-  
6 velopment. Additionally, Government funding should  
7 not compete with or displace the short-term, market-  
8 driven, and typically more specific nature of private-  
9 sector funding. Government funding should be re-  
10 stricted to pre-competitive activities, leaving com-  
11 petitive activities solely for the private sector. As a  
12 rule, the Government should not invest in commer-  
13 cial technology that is in the product development  
14 stage, very close to the broad commercial market-  
15 place, except to meet a specific agency goal. When  
16 the Government provides funding for any science,  
17 engineering, and technology investment program, it  
18 must take reasonable steps to ensure that the poten-  
19 tial benefits derived from the program will accrue  
20 broadly.

21 **SEC. 105. POLICY STATEMENT.**

22 (a) POLICY.—This title is intended to—

23 (1) assure a doubling of the base level of Fed-  
24 eral funding for basic scientific, biomedical, and pre-  
25 competitive engineering research, achieved by stead-

1 ily increasing the annual funding of civilian research  
2 and development programs so that the total annual  
3 investment equals 10 percent of the Federal Govern-  
4 ment's discretionary budget by fiscal year 2011;

5 (2) invest in the future economic growth of the  
6 United States by expanding the research activities  
7 referred to in paragraph (1);

8 (3) enhance the quality of life and health for all  
9 people of the United States through expanded sup-  
10 port for health-related research;

11 (4) allow for accelerated growth of individual  
12 agencies to meet critical national needs;

13 (5) guarantee the leadership of the United  
14 States in science, engineering, medicine, and tech-  
15 nology;

16 (6) ensure that the opportunity and the support  
17 for undertaking good science is widely available  
18 throughout the United States by supporting a geo-  
19 graphically-diverse research and development enter-  
20 prise; and

21 (7) continue aggressive Congressional oversight  
22 and annual budgetary authorization of the individual  
23 agencies listed in subsection (b).

24 (b) AGENCIES COVERED.—The agencies and trust in-  
25 strumentality intended to be covered to the extent that

1 they are engaged in science, engineering, and technology  
2 activities for basic scientific, medical, or pre-competitive  
3 engineering research by this title are—

4 (1) the National Institutes of Health, within the  
5 Department of Health and Human Services;

6 (2) the National Science Foundation;

7 (3) the National Institute for Standards and  
8 Technology, within the Department of Commerce;

9 (4) the National Aeronautics and Space Admin-  
10 istration;

11 (5) the National Oceanic and Atmospheric Ad-  
12 ministration, within the Department of Commerce;

13 (6) the Centers for Disease Control, within the  
14 Department of Health and Human Services;

15 (7) the Department of Energy (to the extent  
16 that it is not engaged in defense-related activities);

17 (8) the Department of Agriculture;

18 (9) the Department of Transportation;

19 (10) the Department of the Interior;

20 (11) the Department of Veterans Affairs;

21 (12) the Smithsonian Institution;

22 (13) the Department of Education;

23 (14) the Environmental Protection Agency;

24 (15) the Food and Drug Administration, within  
25 the Department of Health and Human Services; and

1           (16) the Federal Emergency Management  
2           Agency.

3           (c) DAMAGE TO RESEARCH INFRASTRUCTURE.—A  
4 funding trend equal to or lower than current budgetary  
5 levels will lead to permanent damage to the United States  
6 research infrastructure. This could threaten American  
7 dominance of high-technology industrial leadership.

8           (d) FUTURE FISCAL YEAR ALLOCATIONS.—

9           (1) GOAL.—The goal of this title is to increase  
10 the percentage of the Federal discretionary budget  
11 allocated for civilian research and development by  
12 0.3 percent annually to realize a total of 10 percent  
13 of the Federal discretionary budget by fiscal year  
14 2011.

15           (2) AMOUNTS AUTHORIZED.—There are author-  
16 ized to be appropriated to the agencies listed in sub-  
17 section (b) for civilian research and development the  
18 following amounts:

19                   (A) \$43,080,000,000 for fiscal year 2001.

20                   (B) \$45,160,000,000 for fiscal year 2002.

21                   (C) \$47,820,000,000 for fiscal year 2003.

22                   (D) \$50,540,000,000 for fiscal year 2004.

23                   (E) \$53,410,000,000 for fiscal year 2005.

24           (3) FISCAL YEARS 2006–2011.—There is author-  
25 ized to be appropriated to the agencies listed in sub-

1 section (b) for civilian research and development for  
2 each of the fiscal years 2006 through 2011 an  
3 amount that, on the basis of projections of Federal  
4 discretionary budget amounts as such projections be-  
5 come available, will meet the goal established by  
6 paragraph (1).

7 (4) ACCELERATION TO MEET NATIONAL  
8 NEEDS.—

9 (A) IN GENERAL.—If an agency listed in  
10 subsection (b) has an accelerated funding fiscal  
11 year, then, except as provided by subparagraph  
12 (C), the amount authorized by paragraph (2) or  
13 determined under paragraph (3) for the fiscal  
14 year following the accelerated funding fiscal  
15 year shall be determined in accordance with  
16 subparagraph (B).

17 (B) EXCLUSION OF ACCELERATED FUND-  
18 ING AGENCY.—The amount authorized to be ap-  
19 propriated for civilian research and development  
20 under this subparagraph for a fiscal year shall  
21 be determined—

22 (i) by reducing the total amount that,  
23 but for subparagraph (A), would be au-  
24 thorized to be appropriated by paragraph  
25 (2) or paragraph (3) by a percentage equal

1 to the percentage of the total amount au-  
2 thorized by that paragraph for the fiscal  
3 year preceding the accelerated funding fis-  
4 cal year to the agency that had the acceler-  
5 ated funding fiscal year; and

6 (ii) allocating the reduced amount  
7 among all agencies listed in subsection (b)  
8 other than the agency that had the acceler-  
9 ated funding fiscal year.

10 (C) EXCEPTION TO ACCELERATED FUND-  
11 ING AGENCY RULE.—Subparagraph (B) does  
12 not apply if the amount appropriated to an  
13 agency for civilian research and development  
14 purposes for a fiscal year, adjusted for inflation  
15 (assuming an annual rate of inflation of 3 per-  
16 cent), does not exceed the amount appropriated  
17 to that agency for those purposes for fiscal year  
18 2000 increased by 2.5 percent a year for each  
19 fiscal year after fiscal year 2000.

20 (D) ACCELERATED FUNDING FISCAL YEAR  
21 DEFINED.—In this subsection, the term “accel-  
22 erated funding fiscal year” means a fiscal year  
23 for which the amount appropriated to an agen-  
24 cy for civilian research and development pur-  
25 poses is an increase of more than 8 percent



1           over the amount appropriated to that agency  
2           for the preceding fiscal year for those purposes.

3           (e) CONFORMANCE WITH BUDGETARY CAPS.—Not-  
4 withstanding any other provision of law, no funds may be  
5 made available under this title in a manner that does not  
6 conform with the discretionary spending caps provided in  
7 the most recently adopted concurrent resolution on the  
8 budget or threatens the economic stability of the annual  
9 budget.

10          (f) BALANCED RESEARCH PORTFOLIO.—Because of  
11 the interdependent nature of the scientific and engineering  
12 disciplines, the aggregate funding levels authorized by the  
13 section assume that the Federal research portfolio will be  
14 well-balanced among the various scientific and engineering  
15 disciplines, and geographically dispersed throughout the  
16 States.

17          (g) CONGRESSIONAL AUTHORIZATION PROCESS.—  
18 The policies and authorizations in this Act establish min-  
19 imum levels for the overall Federal civilian research port-  
20 folio across the agencies listed in subsection (b) under the  
21 procedures defined in subsection (d). The amounts author-  
22 ized by subsection (d) establish a framework within which  
23 the authorizing committees of the Congress are to work  
24 when authorizing funding for specific Federal agencies en-  
25 gaged in science, engineering, and technology activities.

1 **SEC. 106. ANNUAL RESEARCH AND DEVELOPMENT ANAL-**  
2 **YSES.**

3 The Director of the Office of Science and Technology  
4 shall provide, no later than February 15th of each year,  
5 a report to Congress that includes—

6 (1) a detailed summary of the total level of  
7 funding for civilian research and development pro-  
8 grams throughout all Federal agencies;

9 (2) a focused strategy that is consistent with  
10 the funding projections of this title for each future  
11 fiscal year until 2011, including specific targets for  
12 each agency that funds civilian research and devel-  
13 opment;

14 (3) an analysis which details funding levels  
15 across Federal agencies by methodology of funding,  
16 including grant agreements, procurement contracts,  
17 and cooperative agreements (within the meaning  
18 given those terms in chapter 63 of title 31, United  
19 States Code);

20 (4) a Federal strategy for infrastructure devel-  
21 opment and research and development capacity  
22 building in States with less concentrated research  
23 and development resources in order to create a na-  
24 tionwide research and development community; and

25 (5) an annual analysis of the total level of fund-  
26 ing for civilian research and development programs

1 throughout all Federal agencies as compared to the  
2 previous fiscal year's Congressional budget appro-  
3 priations for science, engineering, and technology ac-  
4 tivities of the agencies described in section 105(b),  
5 that details for the current fiscal year—

6 (A) how total funding levels compare to  
7 those authorized according to section 105(d);

8 (B) how the differences in those funding  
9 levels will affect the health, stability, and inter-  
10 national standing of the Federal civilian re-  
11 search and development infrastructure;

12 (C) how the disparities in those levels af-  
13 fect the ability of the agencies covered by this  
14 Act to perform their missions; and

15 (D) which agencies are excluded under this  
16 Act due to accelerated funding and the aggre-  
17 gate amount to be authorized to other agencies  
18 under section 105(d).

19 **SEC. 107. COMPREHENSIVE ACCOUNTABILITY STUDY FOR**  
20 **FEDERALLY-FUNDED RESEARCH.**

21 (a) STUDY.—The Director of the Office of Science  
22 and Technology Policy shall enter into agreement with the  
23 National Academy of Sciences for the Academy to conduct  
24 a comprehensive study to develop methods for evaluating  
25 federally funded research and development programs. The

1 Director shall report the results of the study to the Con-  
2 gress not later than 18 months after the date of enactment  
3 of this Act. This study shall—

4 (1) recommend processes to determine an ac-  
5 ceptable level of success for federally funded re-  
6 search and development programs by—

7 (A) describing the research process in the  
8 various scientific and engineering disciplines;

9 (B) describing in the different sciences  
10 what measures and what criteria each commu-  
11 nity uses to evaluate the success or failure of a  
12 program, and on what time scales these meas-  
13 ures are considered reliable—both for explor-  
14 atory long-range work and for short-range  
15 goals; and

16 (C) recommending how these measures  
17 may be adapted for use by the Federal Govern-  
18 ment to evaluate federally funded research and  
19 development programs;

20 (2) assess the extent to which civilian research  
21 and development agencies incorporate independent  
22 merit-based review into the formulation of their stra-  
23 tegic plans and performance plans;

1           (3) recommend mechanisms for identifying fed-  
2           erally funded research and development programs  
3           which are unsuccessful or unproductive;

4           (4) evaluate the extent to which independent,  
5           merit-based evaluation of federally funded research  
6           and development programs and projects achieves the  
7           goal of eliminating unsuccessful or unproductive pro-  
8           grams and projects; and

9           (5) investigate and report on the validity of  
10          using quantitative performance goals for aspects of  
11          programs which relate to administrative manage-  
12          ment of the program and for which such goals would  
13          be appropriate, including aspects related to—

14                (A) administrative burden on contractors  
15                and recipients of financial assistance awards;

16                (B) administrative burdens on external  
17                participants in independent, merit-based evalua-  
18                tions;

19                (C) cost and schedule control for construc-  
20                tion projects funded by the program;

21                (D) the ratio of overhead costs of the pro-  
22                gram relative to the amounts expended through  
23                the program for equipment and direct funding  
24                of research; and

1 (E) the timeliness of program responses to  
2 requests for funding, participation, or equip-  
3 ment use.

4 (6) examine the extent to which program selec-  
5 tion for Federal funding across all agencies exempli-  
6 fies our Nation's historical research and development  
7 priorities—

8 (A) basic, scientific, and technological re-  
9 search in the long-term future scientific and  
10 technological capacity of the Nation; and

11 (B) mission research derived from a high-  
12 priority public function.

13 (b) ALTERNATIVE FORMS FOR PERFORMANCE  
14 GOALS.—Not later than 6 months after transmitting the  
15 report under subsection (a) to Congress, the Director of  
16 the Office of Management and Budget, after public notice,  
17 public comment, and approval by the Director of the Of-  
18 fice of Science and Technology Policy and in consultation  
19 with the National Science and Technology Council shall  
20 promulgate one or more alternative forms for performance  
21 goals under section 1115(b)(10)(B) of title 31, United  
22 States Code, based on the recommendations of the study  
23 under subsection (a) of this section. The head of each  
24 agency containing a program activity that is a research  
25 and development program may apply an alternative form

1 promulgated under this section for a performance goal to  
2 such a program activity without further authorization by  
3 the Director of the Office of Management and Budget.

4 (c) STRATEGIC PLANS.—Not later than one year  
5 after promulgation of the alternative performance goals in  
6 subsection (b) of this section, the head of each agency car-  
7 rying out research and development activities, upon updat-  
8 ing or revising a strategic plan under subsection 306(b)  
9 of title 5, United States Code, shall describe the current  
10 and future use of methods for determining an acceptable  
11 level of success as recommended by the study under sub-  
12 section (a).

13 (d) DEFINITIONS.—In this section:

14 (1) DIRECTOR.—The term “Director” means  
15 the Director of the Office of Science and Technology  
16 Policy.

17 (2) PROGRAM ACTIVITY.—The term “program  
18 activity” has the meaning given that term by section  
19 1115(f)(6) of title 31, United States Code.

20 (3) INDEPENDENT MERIT-BASED EVALUA-  
21 TION.—The term “independent merit-based evalua-  
22 tion” means review of the scientific or technical  
23 quality of research or development, conducted by ex-  
24 perts who are chosen for their knowledge of sci-

1       entific and technical fields relevant to the evaluation  
2       and who—

3                       (A) in the case of the review of a program  
4                       activity, do not derive long-term support from  
5                       the program activity; or

6                       (B) in the case of the review of a project  
7                       proposal, are not seeking funds in competition  
8                       with the proposal.

9       (e) **AUTHORIZATION OF APPROPRIATIONS.**—There  
10      are authorized to be appropriated to carry out the study  
11      required by subsection (a) \$600,000, which shall remain  
12      available until expended.

13      **SEC. 108. EFFECTIVE PERFORMANCE ASSESSMENT PRO-**  
14                       **GRAM FOR FEDERALLY-FUNDED RESEARCH.**

15       (a) **IN GENERAL.**—Chapter 11 of title 31, United  
16      States Code, is amended by adding at the end thereof the  
17      following:

18      **“§ 1120. Accountability for research and develop-**  
19                       **ment programs**

20                       “(a) **IDENTIFICATION OF UNSUCCESSFUL PRO-**  
21      **GRAMS.**—Based upon program performance reports for  
22      each fiscal year submitted to the President under section  
23      1116, the Director of the Office of Management and  
24      Budget shall identify the civilian research and develop-  
25      ment program activities, or components thereof, which do



1 not meet an acceptable level of success as defined in sec-  
 2 tion 1115(b)(1)(B). Not later than 30 days after the sub-  
 3 mission of the reports under section 1116, the Director  
 4 shall furnish a copy of a report listing the program activi-  
 5 ties or component identified under this subsection to the  
 6 President and the Congress.

7       “(b) ACCOUNTABILITY IF NO IMPROVEMENT  
 8 SHOWN.—For each program activity or component that  
 9 is identified by the Director under subsection (a) as being  
 10 below the acceptable level of success for 2 fiscal years in  
 11 a row, the head of the agency shall no later than 30 days  
 12 after the Director submits the second report so identifying  
 13 the program, submit to the appropriate congressional com-  
 14 mittees of jurisdiction—

15               “(1) a concise statement of the steps necessary  
 16       to—

17                       “(A) bring such program into compliance  
 18                       with performance goals; or

19                       “(B) terminate such program should com-  
 20                       pliance efforts fail; and

21               “(2) any legislative changes needed to put the  
 22       steps contained in such statement into effect.”.

23       (b) CONFORMING AMENDMENTS.—(1) The chapter  
 24 analysis for chapter 11 of title 31, United States Code,  
 25 is amended by adding at the end thereof the following:

“1120. Accountability for research and development programs.”.

1       (2) Section 1115(f) of title 31, United States Code,  
2 is amended by striking “section and sections 1116 through  
3 1119,” and inserting “section, sections 1116 through  
4 1120.”.

5       **TITLE II—NETWORKING AND**  
6       **INFORMATION TECHNOLOGY**

7       **SEC. 201. SHORT TITLE.**

8       This title may be cited as the “Networking and Infor-  
9 mation Technology Research and Development Act”.

10       **SEC. 202. FINDINGS.**

11       The Congress makes the following findings:

12           (1) Information technology will continue to  
13 change the way Americans live, learn, and work. The  
14 information revolution will improve the workplace  
15 and the quality and accessibility of health care and  
16 education and make Government more responsible  
17 and accessible. It is important that access to infor-  
18 mation technology be available to all citizens, includ-  
19 ing elderly Americans and Americans with disabil-  
20 ities.

21           (2) Information technology is an imperative en-  
22 abling technology that contributes to scientific dis-  
23 ciplines. Major advances in biomedical research, pub-  
24 lic safety, engineering, and other critical areas de-

1       pend on further advances in computing and commu-  
2       nications.

3               (3) The United States is the undisputed global  
4       leader in information technology.

5               (4) Information technology is recognized as a  
6       catalyst for economic growth and prosperity.

7               (5) Information technology represents one of  
8       the fastest growing sectors of the United States  
9       economy, with electronic commerce alone projected  
10      to become a trillion-dollar business by 2005.

11              (6) Businesses producing computers, semi-  
12      conductors, software, and communications equip-  
13      ment account for one-third of the total growth in the  
14      United States economy since 1992.

15              (7) According to the United States Census Bu-  
16      reau, between 1993 and 1997, the information tech-  
17      nology sector grew an average of 12.3 percent per  
18      year.

19              (8) Fundamental research in information tech-  
20      nology has enabled the information revolution.

21              (9) Fundamental research in information tech-  
22      nology has contributed to the creation of new indus-  
23      tries and new, high-paying jobs.

24              (10) Our Nation's well-being will depend on the  
25      understanding, arising from fundamental research,

1 of the social and economic benefits and problems  
2 arising from the increasing pace of information tech-  
3 nology transformations.

4 (11) Scientific and engineering research and the  
5 availability of a skilled workforce are critical to con-  
6 tinued economic growth driven by information tech-  
7 nology.

8 (12) In 1997, private industry provided most of  
9 the funding for research and development in the in-  
10 formation technology sector. The information tech-  
11 nology sector now receives, in absolute terms, one-  
12 third of all corporate spending on research and de-  
13 velopment in the United States economy.

14 (13) The private sector tends to focus its  
15 spending on short-term, applied research.

16 (14) The Federal Government is uniquely posi-  
17 tioned to support long-term fundamental research.

18 (15) Federal applied research in information  
19 technology has grown at almost twice the rate of  
20 Federal basic research since 1986.

21 (16) Federal science and engineering programs  
22 must increase their emphasis on long-term, high-risk  
23 research.

24 (17) Current Federal programs and support for  
25 fundamental research in information technology is

1       inadequate if we are to maintain the Nation’s global  
2       leadership in information technology.

3       **SEC. 203. AUTHORIZATION OF APPROPRIATIONS.**

4       (a) NATIONAL SCIENCE FOUNDATION.—Section  
5       201(b) of the High-Performance Computing Act of 1991  
6       (15 U.S.C. 5521(b)) is amended—

7               (1) by striking “From sums otherwise author-  
8               ized to be appropriated, there” and inserting  
9               “There”;

10              (2) by striking “1995; and” and inserting  
11              “1995;”; and

12              (3) by striking the period at the end and insert-  
13              ing “; \$580,000,000 for fiscal year 2000;  
14              \$699,300,000 for fiscal year 2001; \$728,150,000 for  
15              fiscal year 2002; \$801,550,000 for fiscal year 2003;  
16              and \$838,500,000 for fiscal year 2004. Amounts au-  
17              thorized under this subsection shall be the total  
18              amounts authorized to the National Science Founda-  
19              tion for a fiscal year for the Program, and shall not  
20              be in addition to amounts previously authorized by  
21              law for the purposes of the Program.”.

22       (b) NATIONAL AERONAUTICS AND SPACE ADMINIS-  
23       TRATION.—Section 202(b) of the High-Performance Com-  
24       puting Act of 1991 (15 U.S.C. 5522(b)) is amended—

1           (1) by striking “From sums otherwise author-  
2           ized to be appropriated, there” and inserting  
3           “There”;

4           (2) by striking “1995; and” and inserting  
5           “1995;”; and

6           (3) by striking the period at the end and insert-  
7           ing “; \$164,400,000 for fiscal year 2000;  
8           \$201,000,000 for fiscal year 2001; \$208,000,000 for  
9           fiscal year 2002; \$224,000,000 for fiscal year 2003;  
10          and \$231,000,000 for fiscal year 2004.”.

11          (c) DEPARTMENT OF ENERGY.—Section 203(e)(1) of  
12          the High-Performance Computing Act of 1991 (15 U.S.C.  
13          5523(e)(1)) is amended—

14           (1) by striking “1995; and” and inserting  
15           “1995;”; and

16           (2) by striking the period at the end and insert-  
17           ing “; \$119,500,000 for fiscal year 2000;  
18           \$175,000,000 for fiscal year 2001; \$220,000,000 for  
19           fiscal year 2002; \$250,000,000 for fiscal year 2003;  
20           and \$300,000,000 for fiscal year 2004.”.

21          (d) NATIONAL INSTITUTE OF STANDARDS AND  
22          TECHNOLOGY.—(1) Section 204(d)(1) of the High-Per-  
23          formance Computing Act of 1991 (15 U.S.C. 5524(d)(1))  
24          is amended—

1 (A) by striking “1995; and” and inserting  
2 “1995;”; and

3 (B) by striking “1996; and” and inserting  
4 “1996; \$9,000,000 for fiscal year 2000; \$9,500,000  
5 for fiscal year 2001; \$10,500,000 for fiscal year  
6 2002; \$16,000,000 for fiscal year 2003; and  
7 \$17,000,000 for fiscal year 2004; and”.

8 (2) Section 204(d) of the High-Performance Com-  
9 puting Act of 1991 (15 U.S.C. 5524(d)) is amended by  
10 striking “From sums otherwise authorized to be appro-  
11 priated, there” and inserting “There”.

12 (e) NATIONAL OCEANIC AND ATMOSPHERIC ADMIN-  
13 ISTRATION.—Section 204(d)(2) of the High-Performance  
14 Computing Act of 1991 (15 U.S.C. 5524(d)(2)) is  
15 amended—

16 (1) by striking “1995; and” and inserting  
17 “1995;”; and

18 (2) by striking the period at the end and insert-  
19 ing “; \$13,500,000 for fiscal year 2000;  
20 \$13,900,000 for fiscal year 2001; \$14,300,000 for  
21 fiscal year 2002; \$14,800,000 for fiscal year 2003;  
22 and \$15,200,000 for fiscal year 2004.”.

23 (f) ENVIRONMENTAL PROTECTION AGENCY.—Sec-  
24 tion 205(b) of the High-Performance Computing Act of  
25 1991 (15 U.S.C. 5525(b)) is amended—

1           (1) by striking “From sums otherwise author-  
2           ized to be appropriated, there” and inserting  
3           “There”;

4           (2) by striking “1995; and” and inserting  
5           “1995;”; and

6           (3) by striking the period at the end and insert-  
7           ing “; \$4,200,000 for fiscal year 2000; \$4,300,000  
8           for fiscal year 2001; \$4,500,000 for fiscal year  
9           2002; \$4,600,000 for fiscal year 2003; and  
10          \$4,700,000 for fiscal year 2004.”.

11          (g) NATIONAL INSTITUTES OF HEALTH.—Title II of  
12          the High-Performance Computing Act of 1991 (15 U.S.C.  
13          5521 et seq.) is amended by inserting after section 205  
14          the following new section:

15          **“SEC. 205A. NATIONAL INSTITUTES OF HEALTH ACTIVITIES.**

16          “(a) GENERAL RESPONSIBILITIES.—As part of the  
17          Program described in title I, the National Institutes of  
18          Health shall support activities directed toward estab-  
19          lishing University-based centers of excellence pursuing re-  
20          search and training in areas of intersection of information  
21          technology and the biomedical, life sciences, and behav-  
22          ioral research; research and development on technologies  
23          and processes to better manage genomic and related life  
24          science data bases; and, computation infrastructure for  
25          and related research on modeling and simulation, as ap-



1 plied to biomedical, life science, and behavioral research.  
 2 In pursuing the above programs and in support of its mis-  
 3 sion of biomedical, life sciences, and behavioral research,  
 4 National Institutes of Health should work in close co-  
 5 operation with agencies involved in related information  
 6 technology research and application efforts.

7 “(b) AUTHORIZATION OF APPROPRIATIONS.—There  
 8 are authorized to be appropriated to the Secretary of  
 9 Health and Human Services for the purposes of the Pro-  
 10 gram \$223,000,000 for fiscal year 2000, \$233,000,000  
 11 for fiscal year 2001, \$242,000,000 for fiscal year 2002,  
 12 \$250,000,000 for fiscal year 2003, and \$250,000,000 for  
 13 fiscal year 2004.”.

14 **SEC. 204. NETWORKING AND INFORMATION TECHNOLOGY**  
 15 **RESEARCH AND DEVELOPMENT.**

16 (a) NATIONAL SCIENCE FOUNDATION.—Section 201  
 17 of the High-Performance Computing Act of 1991 (15  
 18 U.S.C. 5521) is amended by adding at the end the fol-  
 19 lowing new subsections:

20 “(c) NETWORKING AND INFORMATION TECHNOLOGY  
 21 RESEARCH AND DEVELOPMENT.—(1) Of the amounts au-  
 22 thorized under subsection (b), \$350,000,000 for fiscal  
 23 year 2000, \$421,000,000 for fiscal year 2001,  
 24 \$442,000,000 for fiscal year 2002, \$486,000,000 for fis-  
 25 cal year 2003, and \$515,000,000 for fiscal year 2004 shall

1 be available for grants for long-term basic research on net-  
2 working and information technology, with priority given  
3 to research that helps address issues related to high end  
4 computing and software; network stability, fragility, reli-  
5 ability, security (including privacy and counterinitiatives),  
6 and scalability; and the social and economic consequences  
7 (including the consequences for healthcare) of information  
8 technology.

9       “(2) In each of the fiscal years 2000 and 2001, the  
10 National Science Foundation shall award under this sub-  
11 section up to 25 large grants of up to \$1,000,000 each,  
12 and in each of the fiscal years 2002, 2003, and 2004, the  
13 National Science Foundation shall award under this sub-  
14 section up to 35 large grants of up to \$1,000,000 each.

15       “(3)(A) Of the amounts described in paragraph (1),  
16 \$40,000,000 for fiscal year 2000, \$45,000,000 for fiscal  
17 year 2001, \$50,000,000 for fiscal year 2002, \$55,000,000  
18 for fiscal year 2003, and \$60,000,000 for fiscal year 2004  
19 shall be available for grants of up to \$5,000,000 each for  
20 Information Technology Research Centers.

21       “(B) For purposes of this paragraph, the term ‘Infor-  
22 mation Technology Research Centers’ means groups of six  
23 or more researchers collaborating across scientific and en-  
24 gineering disciplines on large-scale long-term research  
25 projects which will significantly advance the science sup-

1 porting the development of information technology or the  
2 use of information technology in addressing scientific  
3 issues of national importance.

4 “(d) MAJOR RESEARCH EQUIPMENT.—(1) In addi-  
5 tion to the amounts authorized under subsection (b), there  
6 are authorized to be appropriated to the National Science  
7 Foundation \$70,000,000 for fiscal year 2000,  
8 \$70,000,000 for fiscal year 2001, \$80,000,000 for fiscal  
9 year 2002, \$80,000,000 for fiscal year 2003, and  
10 \$85,000,000 for fiscal year 2004 for grants for the devel-  
11 opment of major research equipment to establish terascale  
12 computing capabilities at one or more sites and to promote  
13 diverse computing architectures. Awards made under this  
14 subsection shall provide for support for the operating ex-  
15 penses of facilities established to provide the terascale  
16 computing capabilities, with funding for such operating  
17 expenses derived from amounts available under subsection  
18 (b).

19 “(2) Grants awarded under this subsection shall be  
20 awarded through an open, nationwide, peer-reviewed com-  
21 petition. Awardees may include consortia consisting of  
22 members from some or all of the following types of institu-  
23 tions:

24 “(A) Academic supercomputer centers.

25 “(B) State-supported supercomputer centers.

1           “(C) Supercomputer centers that are supported  
2           as part of federally funded research and development  
3           centers.

4 Notwithstanding any other provision of law, regulation, or  
5 agency policy, a federally funded research and develop-  
6 ment center may apply for a grant under this subsection,  
7 and may compete on an equal basis with any other appli-  
8 cant for the awarding of such a grant.

9           “(3) As a condition of receiving a grant under this  
10 subsection, an awardee must agree—

11           “(A) to connect to the National Science Foun-  
12 dation’s Partnership for Advanced Computational  
13 Infrastructure network;

14           “(B) to the maximum extent practicable, to co-  
15 ordinate with other federally funded large-scale com-  
16 puting and simulation efforts; and

17           “(C) to provide open access to all grant recipi-  
18 ents under this subsection or subsection (c).

19           “(e) INFORMATION TECHNOLOGY EDUCATION AND  
20 TRAINING GRANTS.—

21           “(1) INFORMATION TECHNOLOGY GRANTS.—

22 The National Science Foundation shall provide  
23 grants under the Scientific and Advanced Tech-  
24 nology Act of 1992 for the purposes of section 3 (a)  
25 and (b) of that Act, except that the activities sup-

1       ported pursuant to this paragraph shall be limited to  
2       improving education in fields related to information  
3       technology. The Foundation shall encourage institu-  
4       tions with a substantial percentage of student enroll-  
5       ments from groups underrepresented in information  
6       technology industries to participate in the competi-  
7       tion for grants provided under this paragraph.

8               “(2) INTERNSHIP GRANTS.—The National  
9       Science Foundation shall provide—

10               “(A) grants to institutions of higher edu-  
11       cation to establish scientific internship pro-  
12       grams in information technology research at  
13       private sector companies; and

14               “(B) supplementary awards to institutions  
15       funded under the Louis Stokes Alliances for Mi-  
16       nority Participation program for internships in  
17       information technology research at private sec-  
18       tor companies.

19               “(3) MATCHING FUNDS.—Awards under para-  
20       graph (2) shall be made on the condition that at  
21       least an equal amount of funding for the internship  
22       shall be provided by the private sector company at  
23       which the internship will take place.

24               “(4) DEFINITION.—For purposes of this sub-  
25       section, the term ‘institution of higher education’

1 has the meaning given that term in section 1201(a)  
2 of the Higher Education Act of 1965 (20 U.S.C.  
3 1141(a)).

4 “(5) AVAILABILITY OF FUNDS.—Of the  
5 amounts described in subsection (c)(1), \$10,000,000  
6 for fiscal year 2000, \$15,000,000 for fiscal year  
7 2001, \$20,000,000 for fiscal year 2002,  
8 \$25,000,000 for fiscal year 2003, and \$25,000,000  
9 for fiscal year 2004 shall be available for carrying  
10 out this subsection.

11 “(f) EDUCATIONAL TECHNOLOGY RESEARCH.—

12 “(1) RESEARCH PROGRAM.—As part of its re-  
13 sponsibilities under subsection (a)(1), the National  
14 Science Foundation shall establish a research pro-  
15 gram to develop, demonstrate, assess, and dissemi-  
16 nate effective applications of information and com-  
17 puter technologies for elementary and secondary  
18 education. Such program shall—

19 “(A) support research projects, including  
20 collaborative projects involving academic re-  
21 searchers and elementary and secondary  
22 schools, to develop innovative educational mate-  
23 rials, including software, and pedagogical ap-  
24 proaches based on applications of information  
25 and computer technology;

1           “(B) support empirical studies to deter-  
2           mine the educational effectiveness and the cost  
3           effectiveness of specific, promising educational  
4           approaches, techniques, and materials that are  
5           based on applications of information and com-  
6           puter technologies; and

7           “(C) include provision for the widespread  
8           dissemination of the results of the studies car-  
9           ried out under subparagraphs (A) and (B), in-  
10          cluding maintenance of electronic libraries of  
11          the best educational materials identified acces-  
12          sible through the Internet.

13          “(2) REPLICATION.—The research projects and  
14          empirical studies carried out under paragraph (1)  
15          (A) and (B) shall encompass a wide variety of edu-  
16          cational settings in order to identify approaches,  
17          techniques, and materials that have a high potential  
18          for being successfully replicated throughout the  
19          United States.

20          “(3) AVAILABILITY OF FUNDS.—Of the  
21          amounts authorized under subsection (b),  
22          \$10,000,000 for fiscal year 2000, \$10,500,000 for  
23          fiscal year 2001, \$11,000,000 for fiscal year 2002,  
24          \$12,000,000 for fiscal year 2003, and \$12,500,000

1 for fiscal year 2004 shall be available for the pur-  
2 poses of this subsection.

3 “(g) PEER REVIEW.—All grants made under this sec-  
4 tion shall be made only after being subject to peer review  
5 by panels or groups having private sector representation.”.

6 (b) OTHER PROGRAM AGENCIES.—

7 (1) NATIONAL AERONAUTICS AND SPACE AD-  
8 MINISTRATION.—Section 202(a) of the High-Per-  
9 formance Computing Act of 1991 (15 U.S.C.  
10 5522(a)) is amended by inserting “, and may par-  
11 ticipate in or support research described in section  
12 201(c)(1)” after “and experimentation”.

13 (2) DEPARTMENT OF ENERGY.—Section 203(a)  
14 of the High-Performance Computing Act of 1991  
15 (15 U.S.C. 5523(a)) is amended by striking the pe-  
16 riod at the end and inserting a comma, and by add-  
17 ing after paragraph (4) the following:

18 “conduct an integrated program of research, development,  
19 and provision of facilities to develop and deploy to sci-  
20 entific and technical users the high performance com-  
21 puting and collaboration tools needed to fulfill the statu-  
22 tory mission of the Department of Energy, and may par-  
23 ticipate in or support research described in section  
24 201(c)(1).”.



1           (3) NATIONAL INSTITUTE OF STANDARDS AND  
2           TECHNOLOGY.—Section 204(a)(1) of the High-Per-  
3           formance Computing Act of 1991 (15 U.S.C.  
4           5524(a)(1)) is amended by striking “; and” at the  
5           end of subparagraph (C) and inserting a comma,  
6           and by adding after subparagraph (C) the following:  
7           “and may participate in or support research de-  
8           scribed in section 201(c)(1); and”.

9           (4) NATIONAL OCEANIC AND ATMOSPHERIC AD-  
10          MINISTRATION.—Section 204(a)(2) of the High-Per-  
11          formance Computing Act of 1991 (15 U.S.C.  
12          5524(a)(2)) is amended by inserting “, and may  
13          participate in or support research described in sec-  
14          tion 201(c)(1)” after “agency missions”.

15          (5) ENVIRONMENTAL PROTECTION AGENCY.—  
16          Section 205(a) of the High-Performance Computing  
17          Act of 1991 (15 U.S.C. 5525(a)) is amended by in-  
18          serting “, and may participate in or support re-  
19          search described in section 201(c)(1)” after “dynam-  
20          ics models”.

21          (6) UNITED STATES GEOLOGICAL SURVEY.—  
22          Title II of the High-Performance Computing Act of  
23          1991 (15 U.S.C. 5521 et seq.) is amended—

24                  (A) by redesignating sections 207 and 208  
25                  as sections 208 and 209, respectively; and

1 (B) by inserting after section 206 the fol-  
2 lowing new section:

3 **“SEC. 207. UNITED STATES GEOLOGICAL SURVEY.**

4 “The United States Geological Survey may partici-  
5 pate in or support research described in section  
6 201(c)(1).”.

7 **SEC. 205. NEXT GENERATION INTERNET.**

8 (a) IN GENERAL.—Section 103(d) of the High-Per-  
9 formance Computing Act of 1991 (15 U.S.C. 5513(d)) is  
10 amended—

11 (1) in paragraph (1)—

12 (A) by striking “1999 and” and inserting  
13 “1999,”; and

14 (B) by inserting “, \$15,000,000 for fiscal  
15 year 2001, and \$15,000,000 for fiscal year  
16 2002” after “fiscal year 2000”;

17 (2) in paragraph (2), by inserting “, and  
18 \$25,000,000 for fiscal year 2001 and \$25,000,000  
19 for fiscal year 2002” after “Act of 1998”;

20 (3) in paragraph (4)—

21 (A) by striking “1999 and” and inserting  
22 “1999,”; and

23 (B) by inserting “, \$10,000,000 for fiscal  
24 year 2001, and \$10,000,000 for fiscal year  
25 2002” after “fiscal year 2000”; and

1 (4) in paragraph (5)—

2 (A) by striking “1999 and” and inserting  
3 “1999,”; and

4 (B) by inserting “, \$5,500,000 for fiscal  
5 year 2001, and \$5,500,000 for fiscal year  
6 2002” after “fiscal year 2000”.

7 (b) RURAL INFRASTRUCTURE.—Section 103 of the  
8 High-Performance Computing Act of 1991 (15 U.S.C.  
9 5513) is amended by adding at the end thereof the fol-  
10 lowing:

11 “(e) RURAL INFRASTRUCTURE.—Out of appropriated  
12 amounts authorized by subsection (d), not less than 10  
13 percent of the total amounts shall be made available to  
14 fund research grants for making high-speed connectivity  
15 more accessible to users in geographically remote areas.  
16 The research shall include investigations of wireless, hy-  
17 brid, and satellite technologies. In awarding grants under  
18 this subsection, the administering agency shall give pri-  
19 ority to qualified, post-secondary educational institutions  
20 that participate in the Experimental Program to Stimu-  
21 late Competitive Research.”.

22 (c) MINORITY AND SMALL COLLEGE INTERNET AC-  
23 CESS.—Section 103 of the High-Performance Computing  
24 Act of 1991 (15 U.S.C. 5513), as amended by subsection

1 (b), is further amended by adding at the end thereof the  
2 following:

3 “(f) MINORITY AND SMALL COLLEGE INTERNET AC-  
4 CESS.—Not less than 5 percent of the amounts made  
5 available for research under subsection (d) shall be used  
6 for grants to institutions of higher education that are His-  
7 panic-serving, Native American, Native Hawaiian, Native  
8 Alaskan, Historically Black, or small colleges and univer-  
9 sities.”.

10 (d) DIGITAL DIVIDE STUDY.—

11 (1) IN GENERAL.—The National Academy of  
12 Sciences shall conduct a study to determine the ex-  
13 tent to which the Internet backbone and network in-  
14 frastructure contribute to the uneven ability to ac-  
15 cess to Internet-related technologies and services by  
16 rural and low-income Americans. The study shall  
17 include—

18 (A) an assessment of the existing geo-  
19 graphical penalty (as defined in section 7(a)(1)  
20 of the Next Generation Internet Research Act  
21 of 1998 (15 U.S.C. 5501 nt.)) and its impact  
22 on all users and their ability to obtain secure  
23 and reliable Internet access;

1 (B) a review of all current federally funded  
2 research to decrease the inequity of Internet ac-  
3 cess to rural and low-income users; and

4 (C) an estimate of the potential impact of  
5 Next Generation Internet research institutions  
6 acting as aggregators and mentors for nearby  
7 smaller or disadvantaged institutions.

8 (2) REPORT.—The National Academy of  
9 Sciences shall transmit a report containing the re-  
10 sults of the study and recommendations required by  
11 paragraph (1) to the Senate Committee on Com-  
12 merce, Science, and Transportation and the House  
13 of Representatives Committee on Science within 1  
14 year after the date of enactment of this Act.

15 (3) AUTHORIZATION OF APPROPRIATIONS.—  
16 There are authorized to be appropriated to the Na-  
17 tional Academy of Sciences such sums as may be  
18 necessary to carry out this subsection.

19 **SEC. 206. REPORTING REQUIREMENTS.**

20 Section 101 of the High-Performance Computing Act  
21 of 1991 (15 U.S.C. 5511) is amended—

22 (1) in subsection (b)—

23 (A) by redesignating paragraphs (1)  
24 through (5) as subparagraphs (A) through (E),  
25 respectively;

1 (B) by inserting “(1)” after “ADVISORY  
2 COMMITTEE.—”; and

3 (C) by adding at the end the following new  
4 paragraph:

5 “(2) In addition to the duties outlined in paragraph  
6 (1), the advisory committee shall conduct periodic evalua-  
7 tions of the funding, management, implementation, and  
8 activities of the Program, the Next Generation Internet  
9 program, and the Networking and Information Tech-  
10 nology Research and Development program, and shall re-  
11 port not less frequently than once every 2 fiscal years to  
12 the Committee on Science of the House of Representatives  
13 and the Committee on Commerce, Science, and Transpor-  
14 tation of the Senate on its findings and recommendations.  
15 The first report shall be due within 1 year after the date  
16 of the enactment of the Federal Research Investment  
17 Act.”; and

18 (2) in subsection (c) (1)(A) and (2), by insert-  
19 ing “, including the Next Generation Internet pro-  
20 gram and the Networking and Information Tech-  
21 nology Research and Development program” after  
22 “Program” each place it appears.

23 **SEC. 207. REPORT TO CONGRESS.**

24 Section 103 of the High-Performance Computing Act  
25 of 1991 (15 U.S.C. 5513), as amended by section 205 of

1 this title, is further amended by redesignating subsections  
2 (b), (c), and (d) as subsections (c), (d), and (e), respec-  
3 tively, and by inserting after subsection (a) the following  
4 new subsection:

5 “(b) REPORT TO CONGRESS.—

6 “(1) REQUIREMENT.—The Director of the Na-  
7 tional Science Foundation shall conduct a study of  
8 the issues described in paragraph (3), and not later  
9 than 1 year after the date of the enactment of the  
10 Federal Research Investment Act, shall transmit to  
11 the Congress a report including recommendations to  
12 address those issues. Such report shall be updated  
13 annually for 6 additional years.

14 “(2) CONSULTATION.—In preparing the reports  
15 under paragraph (1), the Director of the National  
16 Science Foundation shall consult with the National  
17 Aeronautics and Space Administration, the National  
18 Institute of Standards and Technology, and such  
19 other Federal agencies and educational entities as  
20 the Director of the National Science Foundation  
21 considers appropriate.

22 “(3) ISSUES.—The reports shall—

23 “(A) identify the current status of high-  
24 speed, large bandwidth capacity access to all

1 public elementary and secondary schools and li-  
 2 braries in the United States;

3 “(B) identify how high-speed, large band-  
 4 width capacity access to the Internet to such  
 5 schools and libraries can be effectively utilized  
 6 within each school and library;

7 “(C) consider the effect that specific or re-  
 8 gional circumstances may have on the ability of  
 9 such institutions to acquire high-speed, large  
 10 bandwidth capacity access to achieve universal  
 11 connectivity as an effective tool in the education  
 12 process; and

13 “(D) include options and recommendations  
 14 for the various entities responsible for elemen-  
 15 tary and secondary education to address the  
 16 challenges and issues identified in the reports.”.

17 **SEC. 208. STUDY OF ACCESSIBILITY TO INFORMATION**  
 18 **TECHNOLOGY.**

19 Section 201 of the High-Performance Computing Act  
 20 of 1991 (15 U.S.C. 5524), as amended by sections 3(a)  
 21 and 4(a) of this Act, is amended further by inserting after  
 22 subsection (g) the following new subsection:

23 “(h) STUDY OF ACCESSIBILITY TO INFORMATION  
 24 TECHNOLOGY.—



1           “(1) STUDY.—Not later than 90 days after the  
2           date of the enactment of the Federal Research In-  
3           vestment Act, the Director of the National Science  
4           Foundation, in consultation with the National Insti-  
5           tute on Disability and Rehabilitation Research, shall  
6           enter into an arrangement with the National Re-  
7           search Council of the National Academy of Sciences  
8           for that Council to conduct a study of accessibility  
9           to information technologies by individuals who are  
10          elderly, individuals who are elderly with a disability,  
11          and individuals with disabilities.

12           “(2) SUBJECTS.—The study shall address—

13           “(A) current barriers to access to informa-  
14           tion technologies by individuals who are elderly,  
15           individuals who are elderly with a disability,  
16           and individuals with disabilities;

17           “(B) research and development needed to  
18           remove those barriers;

19           “(C) Federal legislative, policy, or regu-  
20           latory changes needed to remove those barriers;  
21           and

22           “(D) other matters that the National Re-  
23           search Council determines to be relevant to ac-  
24           cess to information technologies by individuals

1           who are elderly, individuals who are elderly with  
2           a disability, and individuals with disabilities.

3           “(3) TRANSMITTAL TO CONGRESS.—The Direc-  
4           tor of the National Science Foundation shall trans-  
5           mit to the Congress within 2 years of the date of the  
6           enactment of the Federal Research Investment Act  
7           a report setting forth the findings, conclusions, and  
8           recommendations of the National Research Council.

9           “(4) FEDERAL AGENCY COOPERATION.—Fed-  
10          eral agencies shall cooperate fully with the National  
11          Research Council in its activities in carrying out the  
12          study under this subsection.

13          “(5) AVAILABILITY OF FUNDS.—Funding for  
14          the study described in this subsection shall be avail-  
15          able, in the amount of \$700,000, from amounts de-  
16          scribed in subsection (c)(1).”.

17 **SEC. 209. COMPTROLLER GENERAL STUDY.**

18          Not later than 1 year after the date of the enactment  
19          of this Act, the Comptroller General shall transmit to the  
20          Congress a report on the results of a detailed study ana-  
21          lyzing the effects of this Act, and the amendments made  
22          by this Act, on lower income families, minorities, and  
23          women.

Passed the Senate September 21, 2000.

Attest:

GARY SISCO,  
*Secretary.*