

103D CONGRESS
1ST SESSION

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To promote the industrial competitiveness and economic growth of the United States by strengthening and expanding the civilian technology programs of the Department of Commerce, amending the Stevenson-Wydler Technology Innovation Act of 1980 to enhance the development and nationwide deployment of manufacturing technologies, and authorizing appropriations for the Technology Administration of the Department of Commerce, including the National Institute of Standards and Technology, and for other purposes.

IN THE SENATE OF THE UNITED STATES

JANUARY 21 (legislative day, JANUARY 5), 1993

Mr. HOLLINGS (for himself, Mr. MITCHELL, Mr. ROCKEFELLER, Mr. BINGAMAN, Mr. LIEBERMAN, Mr. RIEGLE, Mr. ROBB, Mr. WOFFORD, Mr. KERRY, Ms. MOSELEY-BRAUN, and Mr. LEAHY) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

A BILL

To promote the industrial competitiveness and economic growth of the United States by strengthening and expanding the civilian technology programs of the Department of Commerce, amending the Stevenson-Wydler Technology Innovation Act of 1980 to enhance the development and nationwide deployment of manufacturing technologies, and authorizing appropriations for the Technology Administration of the Department of Commerce, including the National Institute of Standards and Technology, 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 **TITLE I—GENERAL PROVISIONS**

4 **SEC. 101. SHORT TITLE AND TABLE OF CONTENTS.**

5 (a) SHORT TITLE.—This Act may be cited as the
 6 “National Competitiveness Act of 1993”.

7 (b) TABLE OF CONTENTS.—

TITLE I—GENERAL PROVISIONS

Sec. 101. Short title; table of contents.
 Sec. 102. Findings.
 Sec. 103. Purposes.
 Sec. 104. Definitions.

TITLE II—MANUFACTURING

Sec. 201. Short title.

Subtitle A—Manufacturing Technology and Extension

Sec 211. Findings and purpose.
 Sec 212. Manufacturing technology and extension amendments to the Steven-
 son-Wydler Act.
 Sec 213. Miscellaneous and conforming amendments.
 Sec 214. Manufacturing Technology Centers.
 Sec 215. State Technology Extension Program.
 Sec 216. American workforce quality partnerships.
 Sec 217. Report on options for accelerating the adoption of new manufacturing
 equipment.

Subtitle B—National Science Foundation Manufacturing Program

Sec 221. National Science Foundation manufacturing activities.

TITLE III—CRITICAL TECHNOLOGIES

Sec 301. Findings.

Subtitle A—Advanced Technology Program and Related

Sec 311. Development of plan for the Advanced Technology Program.
 Sec 312. Advanced Technology Program support of large-scale joint ventures.
 Sec 313. Technical amendments.
 Sec 314. Technology monitoring and competitive assessment.
 Sec 315. Commerce Technology Advisory Board.
 Sec 316. Study of semiconductor lithography technologies.

Subtitle B—Technology Financing Pilot Programs

Sec 321. Findings and purpose.

- Sec 322. Civilian Technology Loan Program.
- Sec 323. Assistance to critical technology investment companies.
- Sec 324. Assistance to State technology development programs.

TITLE IV—ADDITIONAL COMMERCE DEPARTMENT PROVISIONS

- Sec. 401. International standardization.
- Sec. 402. Malcolm Baldrige Award amendments.
- Sec. 403. Cooperative research and development agreements.
- Sec. 404. Clearinghouse on State and Local Initiatives.
- Sec. 405. Use of domestic products.
- Sec. 406. Severability.
- Sec. 407. Wind engineering research program.

TITLE V—AUTHORIZATIONS OF APPROPRIATIONS

- Sec. 501. Technology Administration.
- Sec. 502. National Institute of Standards and Technology.
- Sec. 503. Additional activities of the Technology Administration.
- Sec. 504. National Science Foundation.
- Sec. 505. Availability of appropriations.

TITLE VI—INFORMATION INFRASTRUCTURE AND TECHNOLOGY

- Sec. 601. Short title.
- Sec. 602. Findings and purpose.
- Sec. 603. Information Infrastructure Development Program.
- Sec. 604. Applications for education.
- Sec. 605. Applications for manufacturing.
- Sec. 606. Applications for health care.
- Sec. 607. Applications for libraries.
- Sec. 608. Access to scientific and technical information.

1 **SEC. 102. FINDINGS.**

2 Congress finds and declares the following:

3 (1) In an increasingly competitive world econ-
 4 omy, the companies and nations which lead in the
 5 rapid development, commercialization, and applica-
 6 tion of new technologies, and in the low-priced, high-
 7 quality manufacture of products based on those
 8 technologies, will lead in economic growth, employ-
 9 ment, and high living standards.

10 (2) While the United States remains the world
 11 leader in science and invention, it has not done as

1 well as it should in commercializing and manufactur-
2 ing new inventions. This lag and the unprecedented
3 competitive challenge that the Nation has faced from
4 abroad have contributed to a drop in real wages and
5 living standards.

6 (3) While the private sector must take the lead
7 in the development, application, and manufacture of
8 new technologies, the Federal Government should—

9 (A) assist industry in the development of
10 high-risk, long-term precommercial technologies
11 which promise large economic benefits for the
12 Nation;

13 (B) support industry-led efforts to develop
14 and refine advanced manufacturing tech-
15 nologies;

16 (C) work with States, the private sector,
17 and worker organizations to help small- and
18 medium-sized manufacturers throughout the
19 Nation to adopt best current manufacturing
20 technologies and practices, to improve worker
21 skills, and prepare, as appropriate, to adopt the
22 advanced computer-controlled manufacturing
23 technologies of the 21st century; and

1 (D) cooperate with industry and academia
2 to help create an advanced information infra-
3 structure for the United States.

4 (4) In working with industry to promote the
5 technological leadership and economic growth of the
6 United States, the Federal Government also has a
7 responsibility to consult with business leaders on in-
8 dustry's long-term technological needs, to monitor
9 technological trends and technology targeting efforts
10 in other nations, and generally to ensure that Fed-
11 eral technology programs help United States to re-
12 main competitive and create good domestic jobs.

13 (5) The Department of Commerce, and particu-
14 larly its Technology Administration and National In-
15 stitute of Standards and Technology, is and should
16 remain the civilian government agency which helps
17 commercial industry to speed the development and
18 commercialization of new technologies, improve man-
19 ufacturing, and ensure a growing and healthy na-
20 tional industrial base and good manufacturing jobs.
21 To promote the long-term economic growth of the
22 Nation, these Department of Commerce programs
23 should be strengthened and expanded.

24 **SEC. 103. PURPOSES.**

25 The purposes of this Act are to—

1 (1) strengthen and expand the ability of Fed-
2 eral technology programs, particularly those of the
3 Department of Commerce, to support industry-led
4 efforts to improve the technological capabilities,
5 manufacturing performance, information infrastruc-
6 ture, and employment opportunities of the United
7 States;

8 (2) promote and facilitate, particularly through
9 the Advanced Technology Program of the Depart-
10 ment of Commerce the creation, development, and
11 adoption of technologies that will contribute signifi-
12 cantly to United States economic competitiveness,
13 employment, and prosperity;

14 (3) develop a nationwide network of sources of
15 technological advice for manufacturers, particularly
16 small- and medium-sized firms, and to provide high
17 quality, current information to that network;

18 (4) encourage the development and rapid appli-
19 cation of advanced manufacturing technologies and
20 processes;

21 (5) create pilot programs to stimulate and sup-
22 plement the flow of capital to business concerns en-
23 gaged principally in development or utilization of
24 critical civilian and other advanced technologies;

1 (6) ensure the widest possible application of
2 high-performance computing and high-speed
3 networking and to aid United States industry to de-
4 velop an advanced national information infrastruc-
5 ture; and

6 (7) enhance and expand the core programs of
7 the National Institute of Standards and Technology.

8 **SEC. 104. DEFINITIONS.**

9 For purposes of this Act—

10 (1) the term “advanced manufacturing tech-
11 nology” includes—

12 (A) numerically-controlled machine tools,
13 robots, automated process control equipment,
14 computerized flexible manufacturing systems,
15 associated computer software, and other tech-
16 nology for improving manufacturing and indus-
17 trial production which advance the state-of-the-
18 art; and

19 (B) novel techniques and processes de-
20 signed to improve manufacturing quality, pro-
21 ductivity, and practice, and to promote sustain-
22 able development, including engineering design,
23 quality assurance, concurrent engineering, con-
24 tinuous process production technology, energy
25 efficiency, waste minimization, design for

1 recyclability or parts reuse, inventory manage-
2 ment, upgraded worker skills, and communica-
3 tions with customers and suppliers;

4 (2) the term “Director” means the Director of
5 the Institute;

6 (3) the term “Institute” means the National In-
7 stitute of Standards and Technology;

8 (4) the term “modern technology” means the
9 best available proven technology, techniques, and
10 processes appropriate to enhancing the productivity
11 of manufacturers;

12 (5) the term “Secretary” means the Secretary
13 of Commerce; and

14 (6) the term “Under Secretary” means the
15 Under Secretary of Commerce for Technology.

16 **TITLE II—MANUFACTURING**

17 **SEC. 201. SHORT TITLE.**

18 This title may be cited as the “Manufacturing Tech-
19 nology and Extension Act of 1993”.

20 **Subtitle A—Manufacturing** 21 **Technology and Extension**

22 **SEC. 211. FINDINGS AND PURPOSE.**

23 (a) FINDINGS.—Congress finds and declares the
24 following:

1 (1) United States manufacturers, especially
2 small businesses, require the adoption and imple-
3 mentation of both modern (that, appropriate and
4 currently available) technologies and advanced man-
5 ufacturing and process technologies to meet the
6 challenge of foreign competition.

7 (2) The development and deployment of modern
8 and advanced manufacturing technologies are vital
9 to the economic growth, environmental sustain-
10 ability, standard of living, competitiveness in world
11 markets, and national security of the United States.

12 (3) New developments in flexible, computer-in-
13 tegrated manufacturing, electronic manufacturing
14 communications networks, and other new tech-
15 nologies make possible dramatic improvements
16 across all industrial sectors in productivity, quality,
17 and the speed with which manufacturers can re-
18 spond to changing market opportunities.

19 (4) The Department of Commerce's Technology
20 Administration can continue to play an important
21 role in assisting United States industry to develop,
22 test, and deploy modern and advanced manufactur-
23 ing technologies.

24 (b) PURPOSE.—It is the purpose of this subtitle to
25 help ensure the continued leadership of the United States

1 in manufacturing by enhancing the Department of Com-
 2 merce’s technology programs to—

3 (1) provide domestic manufacturers, especially
 4 small- and medium-sized companies, with ready ac-
 5 cess to high quality Federal advice and assistance in
 6 the development, deployment, and improvement of
 7 modern manufacturing technology, and in solving
 8 their specific technology-based problems; and

9 (2) encourage, facilitate, and promote the devel-
 10 opment and adoption of advanced manufacturing
 11 technologies by the private sector.

12 **SEC. 212. MANUFACTURING TECHNOLOGY AND EXTENSION**
 13 **AMENDMENTS TO THE STEVENSON-WYDLER**
 14 **ACT.**

15 The Stevenson-Wydler Technology Innovation Act of
 16 1980 (15 U.S.C. 3701 et seq.) is amended by adding at
 17 the end the following new title:

18 **“TITLE III—MANUFACTURING**
 19 **TECHNOLOGY**

20 **“SEC. 301. STATEMENT OF POLICY.**

21 “Congress declares that it is the policy of the United
 22 States that—

23 “(1) Federal agencies, particularly the Depart-
 24 ment of Commerce, shall work with industry and
 25 labor to ensure that within 10 years of the date of

1 enactment of this Act the United States is second to
2 no other nation in the development, deployment, and
3 use of advanced manufacturing technology;

4 “(2) all the major Federal research and devel-
5 opment agencies shall place a high priority on the
6 development and deployment of advanced manufac-
7 turing technologies, and shall work closely with
8 United States industry and with the Nation’s univer-
9 sities to develop and test those technologies; and

10 “(3) other Federal departments and agencies
11 which work with civilian industry and labor shall be
12 encouraged, as appropriate and consistent with ap-
13 plicable statutes and duties, to work with and
14 through the programs of the Department of Com-
15 merce.

16 **“SEC. 302. ROLE OF THE DEPARTMENT OF COMMERCE.**

17 “(a) IN GENERAL.—The Department of Commerce
18 shall, consistent with the policies and purposes of section
19 301, work with United States commercial industry and
20 labor to—

21 “(1) help develop new generic advanced manu-
22 facturing technologies, including advanced flexible
23 computer-integrated manufacturing systems and
24 electronic communications networks; and

1 “(2) assist the States and the private sector to
2 help United States manufacturers, especially small
3 and medium-sized manufacturing enterprises, to
4 adopt best current manufacturing technologies and
5 practices and, as appropriate, new advanced manu-
6 facturing equipment and techniques.

7 “(b) TWENTY-FIRST CENTURY MANUFACTURING IN-
8 FRASTRUCTURE PROGRAM.—(1) As one important step to
9 carry out the responsibilities of the Department of Com-
10 merce under subsection (a) of this section, there is estab-
11 lished within the Institute a Twenty-First Century Manu-
12 facturing Infrastructure Program, which shall include—

13 “(A) the Advanced Manufacturing Technology
14 Development Program established under section 303
15 of this title; and

16 “(B) the National Manufacturing Outreach
17 Program established under section 304 of this title
18 and the associated programs established under sec-
19 tions 25 and 26 of the National Institute of Stand-
20 ards and Technology Act (15 U.S.C. 278k–l).

21 “(2) The Secretary, through the Under Secretary and
22 the Director, may accept the transfer of funds from any
23 other Federal agency and may use those funds to imple-
24 ment the Twenty-First Century Manufacturing Infra-
25 structure Program and support its activities.

1 **“SEC. 303. ADVANCED MANUFACTURING TECHNOLOGY DE-**
2 **VELOPMENT PROGRAM.**

3 “(a) PROGRAM DIRECTION.—The Secretary, through
4 the Under Secretary and the Director, shall establish an
5 Advanced Manufacturing Technology Development Pro-
6 gram which shall include advanced manufacturing systems
7 and networking projects.

8 “(b) PROGRAM GOAL.—The goal of the Advanced
9 Manufacturing Technology Development Program is to
10 create collaborative multiyear technology development pro-
11 grams involving United States industry and, as appro-
12 priate, other Federal agencies, the States, worker organi-
13 zations, universities, and other interested persons, in order
14 to develop, refine, test, and transfer design and manufac-
15 turing technologies and associated applications, including
16 advanced computer integration and electronic networks.

17 “(c) PROGRAM COMPONENTS.—The Advanced Manu-
18 facturing Technology Development Program shall in-
19 clude—

20 “(1) the advanced manufacturing research and
21 development activities at the Institute; and

22 “(2) one or more technology development
23 testbeds within the United States, selected in ac-
24 cordance with procedures, including cost sharing, es-
25 tablished for the Advanced Technology Program
26 under section 28 of the National Institute of Stand-

1 ards and Technology Act (15 U.S.C. 278n), whose
2 purpose shall be to develop, refine, test, and transfer
3 advanced manufacturing and networking tech-
4 nologies and associated applications through a direct
5 manufacturing process.

6 “(d) ACTIVITIES.—The Advanced Manufacturing
7 Technology Development Program, under the coordination
8 of the Secretary, through the Director, shall—

9 “(1) test and, as appropriate, develop the
10 equipment, computer software, and systems integra-
11 tion necessary for the successful operation within the
12 United States of advanced design and manufactur-
13 ing systems and associated electronic networks;

14 “(2) establish at the Institute and the tech-
15 nology development testbed or testbeds—

16 “(A) prototype advanced computer-inte-
17 grated manufacturing systems; and

18 “(B) prototype electronic networks linking
19 manufacturing systems;

20 “(3) assist industry to develop, and implement
21 voluntary consensus standards relevant to advanced
22 computer-integrated manufacturing operations, in-
23 cluding standards for networks, electronic data
24 interchange, and digital product data specifications;

1 “(4) help to make high-performance computing
2 and networking technologies an integral part of de-
3 sign and production processes where appropriate;

4 “(5) conduct research to identify and overcome
5 technical barriers to the successful and cost-effective
6 operation of advanced manufacturing systems and
7 networks;

8 “(6) facilitate industry efforts to develop and
9 test new applications for manufacturing systems and
10 networks;

11 “(7) involve in the Advanced Manufacturing
12 Technology Development Program, to the maximum
13 extent practicable, both those United States compa-
14 nies which make manufacturing and computer
15 equipment and a broad range of company personnel
16 from those companies which buy the equipment;

17 “(8) identify training needs, as appropriate, for
18 company managers, engineers, and employees in the
19 operation and applications of advanced manufactur-
20 ing technologies and networks, with a particular em-
21 phasis on training for production workers in the ef-
22 fective use of new technologies;

23 “(9) work with private industry, universities,
24 and other interested parties to develop standards for
25 the use of advanced computer-based training sys-

1 tems, including multi-media and interactive learning
2 technologies;

3 “(10) involve small- and medium-sized manu-
4 facturers in its activities; and

5 “(11) exchange information and personnel, as
6 appropriate, between the technology development
7 testbeds and the electronic network created under
8 section 303.

9 “(e) TESTBED AWARDS.—(1) In selecting applicants
10 to receive awards under subsection (c)(2) of this section,
11 the Secretary shall give particular consideration to appli-
12 cants that have existing computer expertise in the man-
13 agement of business, product, and process information
14 such as digital data product and process technologies and
15 customer-supplier information systems, and the ability to
16 diffuse such expertise into industry, and that, in the case
17 of joint research and development ventures, include both
18 suppliers and users of advanced manufacturing equip-
19 ment.

20 “(2) An industry-led joint research and development
21 venture applying for an award under subsection (c)(2) of
22 this section may include one or more State research orga-
23 nizations, universities, independent research organizations
24 or Regional Centers for the Transfer of Manufacturing
25 Technology (as created under section 25 of the National

1 Institute of Standards and Technology Act) and other or-
2 ganizations as the Secretary considers appropriate.

3 “(f) ADVICE AND ASSISTANCE.—(1) Within 6 months
4 after the date of enactment of this title, and before any
5 request for proposals is issued, the Secretary shall hold
6 one or more workshops to solicit advice from United
7 States industry and from other Federal agencies, particu-
8 larly the Department of Defense, regarding the specific
9 missions and activities of the testbeds.

10 “(2) The Secretary shall, to the greatest extent pos-
11 sible, coordinate activities under this section with activities
12 of other Federal agencies and initiatives relating to Com-
13 puter-Aided Acquisition and Logistics Support, electronic
14 data interchange, flexible computer-integrated manufac-
15 turing, and enterprise integration..

16 “(3) The Secretary may request and accept funds,
17 facilities, equipment, or personnel from other Federal
18 agencies in order to carry out responsibilities under this
19 section.

20 “(g) APPLICATION OF ANTITRUST LAWS.—Nothing
21 in this section shall be construed to create any immunity
22 to any civil or criminal action under any Federal or State
23 antitrust law, or to alter or restrict in any matter the ap-
24 plicability of any Federal or State antitrust law.

1 **“SEC. 304. NATIONAL MANUFACTURING OUTREACH PRO-**
2 **GRAM.**

3 “(a) ESTABLISHMENT AND PURPOSE.—There is
4 hereby established a National Manufacturing Outreach
5 Program (hereafter in this section referred to as the ‘Out-
6 reach Program’). The Secretary, acting through the Under
7 Secretary and the Director, shall implement and coordi-
8 nate the Outreach Program in accordance with an initial
9 plan to be prepared and submitted to Congress within 6
10 months after the date of enactment of this title and a 5-
11 year plan for the Outreach Program to be submitted to
12 the Congress within a year after the date of enactment
13 of this title and to be updated annually. The purpose of
14 the Outreach Program is to link and strengthen the Na-
15 tion’s manufacturing extension centers and activities in
16 order to assist United States manufacturers, especially
17 small and medium-sized firms, to expand and accelerate
18 the use of modern manufacturing practices, and to accel-
19 erate the development and use of advanced manufacturing
20 technology.

21 “(b) COMPONENTS.—The Outreach Program shall be
22 a partnership of the Department of Commerce, the States,
23 the private sector, and, as appropriate, other Federal
24 agencies to provide a national system of manufacturing
25 extension centers and technical services to United States
26 companies, particularly small and medium-sized manufac-

1 turers. The Outreach Program shall include the following
2 components—

3 “(1) Manufacturing Outreach Centers, as pro-
4 vided for under subsection (c) of this section;

5 “(2) Regional Centers for the Transfer of Man-
6 ufacturing Technology, as established under section
7 25 of the National Institute of Standards and Tech-
8 nology Act, and the State Technology Extension
9 Program, as established under section 26 of the Na-
10 tional Institute of Standards and Technology Act;

11 “(3) an organization, coordinated and funded
12 by the Institute, which links and supports Manufac-
13 turing Outreach Centers and Regional Centers for
14 the Transfer of Manufacturing Technology, and
15 which operates the Technology Extension Network
16 and Clearinghouse established under subsection (d)
17 of this section; and

18 “(4) such technology and manufacturing exten-
19 sion centers supported by other Federal departments
20 and agencies as the Secretary may deem appropriate
21 for inclusion in the Outreach Network.

22 “(c) MANUFACTURING OUTREACH CENTERS.—(1)
23 Government and private sector organizations, actively en-
24 gaged in technology or manufacturing extension activities,
25 may apply to the Secretary to be designated as Manufac-

1 turing Outreach Centers. Eligible organizations may in-
2 clude Federal, State, and local government agencies, their
3 extension programs, and their laboratories; small business
4 development centers; and appropriate programs run by
5 professional societies, worker organizations, industrial or-
6 ganizations, for-profit or nonprofit organizations, univer-
7 sities, community colleges, and technical schools and col-
8 leges, including, where appropriate, vendor-supported
9 demonstrations of production applications.

10 “(2) The Secretary shall establish terms and condi-
11 tions of participation and may provide financial assistance,
12 on a cost-shared basis and through competitive, merit-
13 based review processes, to nonprofit or government par-
14 ticipants throughout the United States to enable them
15 to—

16 “(A) join the Outreach Program and dissemi-
17 nate its technical and information services to United
18 States manufacturing firms, particularly small and
19 medium-sized firms; and

20 “(B) strengthen their efforts to help small and
21 medium-sized United States manufacturers to ex-
22 pand and accelerate the use of modern and advanced
23 manufacturing practices.

24 “(3) Each Manufacturing Outreach Center shall have
25 the option of affiliating or not affiliating with one or more

1 Regional Centers for the Transfer of Manufacturing Tech-
2 nology. If such a Manufacturing Outreach Center chooses
3 to make such an affiliation, the Secretary, through the Di-
4 rector, shall take such steps as appropriate to ensure a
5 productive working partnership between such center and
6 the Regional Center or Centers with which it affiliates.

7 “(d) TECHNOLOGY EXTENSION COMMUNICATIONS
8 NETWORK.—The Department of Commerce shall provide
9 for an instantaneous, interactive communications network
10 to serve the Outreach Program, to facilitate interaction
11 among Manufacturing Outreach Centers, Regional Cen-
12 ters for the Transfer of Manufacturing Technology, and
13 Federal agencies and to permit the collection and dissemi-
14 nation in electronic form, in a timely and accurate man-
15 ner, of information described in subsection (e). Such com-
16 munications infrastructure shall, wherever practicable,
17 make use of existing computer networks, data bases, and
18 electronic bulletin boards. Communications infrastructure
19 arrangements, including user fees and appropriate elec-
20 tronic access for public and private information suppliers
21 and users shall be addressed in the 5-year plan prepared
22 under subsection (a) of this section.

23 “(e) CLEARINGHOUSE.—(1) The Secretary shall de-
24 velop a clearinghouse system, using the National Institute
25 of Standards and Technology, the National Technical In-

1 formation Service, and private sector information provid-
2 ers and carriers where appropriate, to—

3 “(A) identify expertise and acquire information,
4 appropriate to the purpose of the Outreach Program
5 stated in subsection (a), from all available Federal
6 sources, and where appropriate from other sources,
7 providing assistance where necessary in making such
8 information electronically available and compatible
9 with the electronic network;

10 “(B) ensure ready access by United States
11 manufacturers and other interested private sector
12 parties to the most recent relevant available such in-
13 formation and expertise; and

14 “(C) to the extent practicable, inform such
15 manufacturers of the availability of such informa-
16 tion.

17 “(2) The clearinghouse shall include information
18 available electronically on—

19 “(A) activities of Manufacturing Outreach Cen-
20 ters, Regional Centers for the Transfer of Manufac-
21 turing Technology, the State Technology Extension
22 Program, and the users of the electronic network;

23 “(B) domestic and international standards from
24 the Institute and private sector organizations and

1 other export promotion information, including con-
2 formity assessment requirements and procedures;

3 “(C) the Malcolm Baldrige Quality program,
4 and quality principles and standards;

5 “(D) manufacturing processes minimizing waste
6 and negative environmental impact;

7 “(E) federally-funded technology development
8 and transfer programs;

9 “(F) responsibilities assigned to the Clearing-
10 house for State and Local Initiatives on Productiv-
11 ity, Technology, and Innovation under section 102 of
12 this Act;

13 “(G) how to access data bases and services; and

14 “(H) other subjects relevant to the ability of
15 companies to manufacture and sell competitive prod-
16 ucts throughout the world.

17 “(f) PRINCIPLES.—In carrying out this section, the
18 Department of Commerce shall take into consideration the
19 following principles:

20 “(1) The Outreach Program and the electronic
21 network shall be established and operated through
22 cooperation and co-funding among Federal, State,
23 and local governments, other public and private con-
24 tributors, and end users.

1 “(2) The Outreach Program and the electronic
2 network shall utilize and leverage, to the extent
3 practicable, existing organizations, data bases, elec-
4 tronic networks, facilities, and capabilities, and shall
5 be designed to complement rather than supplant
6 State and local programs.

7 “(3) The Outreach Program should, to the ex-
8 tent practicable, involve key stakeholders at all levels
9 in the planning and governance of modernization
10 strategies; concentrate on assisting local clusters of
11 firms; promote collaborative learning and cooperative
12 action among small and large manufacturers; link
13 industrial modernization programs tightly to existing
14 and future Federal training initiatives, including
15 those for youth apprenticeship programs; encourage
16 small firms to seek modernization services by work-
17 ing with major manufacturers to strengthen and co-
18 ordinate their supplier assessment, certification, and
19 development programs; identify and honor best prac-
20 tices by firms and the programs that support them;
21 provide funding based on performance and ensure
22 rigorous evaluation of extension services; as appro-
23 priate, coordinate Federal programs that support
24 manufacturing modernization; and work with Fed-
25 eral, State, and private organizations so that Out-

1 reach Centers and Regional Centers for the Transfer
2 of Manufacturing Technology can provide referrals
3 to other important business services, such as assist-
4 ance with financing, training, and exporting.

5 “(4) The Outreach Program and the electronic
6 network and communications infrastructure provided
7 for under subsection (d), shall be subject to all ap-
8 plicable provisions of law for the protection of trade
9 secrets and business confidential information.

10 “(5) Local or regional needs should determine
11 the management structure and staffing of the Manu-
12 facturing Outreach Centers. The Outreach Program
13 shall strive for geographical balance with the ulti-
14 mate goal of access for all United States manufac-
15 turers.

16 “(6) Manufacturing Outreach Centers should
17 have the capability to deliver outreach services di-
18 rectly to manufacturers; actively work with, rather
19 than supplant, the private sector; and to the extent
20 practicable, maximize the exposure of manufacturers
21 to demonstrations of modern technologies in use.

22 “(7) Manufacturing Outreach Centers shall
23 focus, where possible, on the development and de-
24 ployment of flexible manufacturing practices applica-
25 ble to both defense and commercial applications.

1 “(8) The Department of Commerce shall de-
2 velop mechanisms for—

3 “(A) soliciting the perspectives of manufac-
4 turers using the services of the Manufacturing
5 Outreach Centers and Regional Centers for the
6 Transfer of Manufacturing Technology; and

7 “(B) evaluating the effectiveness of the
8 Manufacturing Outreach Centers.

9 **“SEC. 305. INDUSTRY-LED MANUFACTURING ADVISORY**
10 **COMMITTEE.**

11 “(a) ESTABLISHMENT.—The Director of the Office
12 of Science and Technology Policy, after consultation with
13 the Secretary of Commerce and other appropriate Federal
14 officials, shall establish within that office a Manufacturing
15 Advisory Committee (hereafter in this section referred to
16 as the ‘Committee’), led by industry officials, to provide
17 advice and, as appropriate, guidance to Federal manufac-
18 turing programs.

19 “(b) FUNCTIONS.—The Committee shall—

20 “(1) collect and analyze information on the
21 range of factors which determine the success of
22 United States-based manufacturing industries, and
23 particularly factors regarding the development and
24 deployment of advanced manufacturing technologies
25 and the application of best manufacturing practices;

1 “(2) identify areas where appropriate coopera-
2 tion between the Federal Government and the pri-
3 vate sector, including Government support for indus-
4 try-led joint research and development ventures and
5 for manufacturing extension activities, would en-
6 hance United States industrial competitiveness, and
7 provide advice and guidance for such cooperative ef-
8 forts;

9 “(3) provide guidance on what Federal policies
10 and practices are necessary to strengthen United
11 States-based manufacturing, particularly Federal
12 policies and practices regarding research budgets,
13 interagency coordination and initiatives, technology
14 transfer, regulation, and procurement; and

15 “(4) generally develop recommendations for
16 guiding Federal agency and interagency activities re-
17 lated to United States-based manufacturing.

18 “(c) MEMBERSHIP AND PROCEDURES.—(1)(A) The
19 Committee shall be composed of 13 members, 7 of whom
20 shall constitute a quorum.

21 “(B) The Director of the Office of Science and Tech-
22 nology Policy, the Secretary, the Secretary of Defense, and
23 the Director of the National Science Foundation, or their
24 designees, shall serve as members of the Committee.

1 “(C) The President, acting through the Director of
2 the Office of Science and Technology Policy, shall within
3 120 days of the date of enactment of this Act appoint 9
4 additional members from the private manufacturing in-
5 dustry, worker organizations, State technology agencies,
6 and academia. At least 1 such member shall be from small
7 business.

8 “(2) The Director of the Office of Science and Tech-
9 nology Policy or the Director’s designee shall chair the
10 Board.

11 “(3) The chairman shall call the first meeting of the
12 Board within 30 days after the appointment of members
13 is completed.

14 “(4) The Board may use such personnel detailed
15 from Federal agencies as may be necessary to enable it
16 to perform its functions.

17 “(5) Members of the Board, other than full-time em-
18 ployees of the Federal Government, while attending meet-
19 ings of the Board or otherwise performing duties of the
20 Board while away from their homes or regular places of
21 business, shall be allowed travel expenses in accordance
22 with subchapter I of chapter 57 of title 5, United States
23 Code.

24 “(6) The Board shall submit a report of its activities
25 once every year after its establishment to the President,

1 the Committee on Science, Space, and Technology of the
 2 House of Representatives, and the Committee on Com-
 3 merce, Science, and Transportation of the Senate.

4 “(d) AUTHORIZATION OF APPROPRIATIONS.—There
 5 are authorized to be appropriated to carry out this section
 6 such sums as may be necessary for the fiscal years 1994
 7 and 1995.’’.

8 **SEC. 213. MISCELLANEOUS AND CONFORMING AMEND-**
 9 **MENTS.**

10 (a) DEFINITIONS.—Section 4 of the Stevenson-
 11 Wydler Technology Innovation Act of 1980 (15 U.S.C.
 12 3703) is amended by adding at the end the following new
 13 paragraphs:

14 “(14) ‘Director’ means the Director of the Na-
 15 tional Institute of Standards and Technology.

16 “(15) ‘Institute’ means the National Institute
 17 of Standards and Technology.

18 “(16) ‘Assistant Secretary’ means the Assistant
 19 Secretary of Commerce for Technology Policy.

20 “(17) ‘Advanced manufacturing technology’ in-
 21 cludes—

22 “(A) numerically-controlled machine tools,
 23 robots, automated process control equipment,
 24 computerized flexible manufacturing systems,
 25 associated computer software, and other tech-

1 nology for improving manufacturing and indus-
 2 trial production which advance the state-of-the-
 3 art; and

4 “(B) novel techniques and processes designed to
 5 improve manufacturing quality, productivity, and
 6 practices, and to promote sustainable development,
 7 including engineering design, quality assurance, con-
 8 current engineering, continuous process production
 9 technology, energy efficiency, waste minimization,
 10 design for recyclability or parts reuse, inventory
 11 management, upgraded worker skills, and commu-
 12 nications with customers and suppliers.

13 “(18) ‘Modern technology’ means the best avail-
 14 able proven technology, techniques, and processes
 15 appropriate to enhancing the productivity of manu-
 16 facturers.”.

17 (b) REDESIGNATIONS.—The Stevenson-Wydler Tech-
 18 nology Innovation Act of 1980 (15 U.S.C. 3701 et seq.)
 19 is amended—

20 (1) by inserting immediately after section 4 the
 21 following new title heading:

22 **“TITLE I—DEPARTMENT OF COMMERCE**
 23 **AND RELATED PROGRAMS”;**

24 (2) by redesignating sections 5 through 10 as
 25 sections 101 through 106, respectively;

1 (3) by striking section 21;

2 (4) by redesignating sections 16 through 20,
3 and 22, as sections 107 through 112, respectively;

4 (5) by inserting immediately after section 112
5 (as redesignated by paragraph (4) of this sub-
6 section) the following new title heading:

7 **“TITLE II—FEDERAL TECHNOLOGY**
8 **TRANSFER”;**

9 (6) by redesignating sections 11 through 15 as
10 sections 201 through 205, respectively;

11 (7) by redesignating section 23 as section 206;

12 (8) in section 4—

13 (A) by striking “section 5” each place it
14 appears and inserting in lieu thereof “section
15 101”;

16 (B) in paragraphs (4) and (6), by striking
17 “section 6” and “section 8” each place they ap-
18 pear and inserting in lieu thereof “section 102”
19 and “section 104”, respectively; and

20 (C) in paragraph (13), by striking “section
21 6” and inserting in lieu thereof “section 102”;

22 (9) in section 105 (as redesignated by para-
23 graph (2) of this subsection) by striking “section 6”
24 each place it appears and inserting in lieu thereof
25 “section 102”;

1 (10) in section 106(d)—(as redesignated by
2 paragraph (2) of this subsection) by striking “7, 9,
3 11, 15, 17, or 20” and inserting in lieu thereof
4 “103, 105, 108, 111, 201, or 205”;

5 (11) in section 202(b) (as redesignated by para-
6 graph (6) of this subsection) by striking “section
7 14” and inserting in lieu thereof “section 204”;

8 (12) in section 204(a)(1) (as redesignated by
9 paragraph (6) of this subsection) by striking “sec-
10 tion 12” and inserting in lieu thereof “section 202”;

11 (13) in section 112 (as redesignated by para-
12 graph (4) of this subsection) by striking “sections
13 11, 12, and 13” and inserting in lieu thereof “sec-
14 tions 201, 202, and 203”;

15 (14) in section 206 (as redesignated by para-
16 graph (7) of this subsection)—

17 (A) by striking “section 11(b)” in subsection
18 (a)(2) and inserting in lieu thereof “section 201(b)”;
19 and

20 (B) by striking “section 6(d)” in subsection (b)
21 and inserting in lieu thereof “section 102(d)”;

22 (15) by adding at the end of section 201 (as re-
23 designated by paragraph (6) of this subsection) the
24 following new subsection:

1 “(j) ADDITIONAL TECHNOLOGY TRANSFER MECHA-
 2 NISMS.—In addition to the technology transfer mecha-
 3 nisms set forth in this section and section 202 of this Act,
 4 the heads of Federal departments and agencies also may
 5 transfer technologies through the technology transfer, ex-
 6 tension, and deployment programs of the Department of
 7 Commerce and the Department of Defense.”.

8 **SEC. 214. MANUFACTURING TECHNOLOGY CENTERS.**

9 Section 25 of the National Institute of Standards and
 10 Technology Act (15 U.S.C. 278k), is amended—

11 (1) by amending the section heading to read as
 12 follows: “**MANUFACTURING TECHNOLOGY CEN-**
 13 **TERS**”;

14 (2) in subsection (c)(5), by striking “which are
 15 designed” and all that follows through “operation of
 16 a Center” and inserting in lieu thereof “to a maxi-
 17 mum of one-third Federal funding. Each Center
 18 which receives financial assistance under this section
 19 shall be evaluated during its sixth year of operation,
 20 and at such subsequent times as the Secretary con-
 21 siders appropriate, by an evaluation panel appointed
 22 by the Secretary in the same manner as was the
 23 evaluation panel previously appointed. The Secretary
 24 shall not provide funding for additional years of the
 25 Center’s operation unless the evaluation is positive

1 and the Secretary finds that continuation of funding
2 furthers the goals of the Department. Such addi-
3 tional Federal funding shall not exceed one-third of
4 the cost of the Center's operations'';

5 (3) by striking subsection (d); and

6 (4) by adding at the end the following new sub-
7 sections:

8 "(d) If a Center receives a positive evaluation during
9 its third year of operation, the Director may, any time
10 after that evaluation, contract with the Center to provide
11 additional technology extension or transfer services above
12 and beyond the baseline activities of the Center. Such ad-
13 ditional services may include, but are not necessarily lim-
14 ited to, the development and operation of the following:

15 "(1) Services focused on the testing, develop-
16 ment, and application of manufacturing and process
17 technologies within specific technical fields such as
18 advanced materials or electronics fabrication for the
19 purpose of assisting United States companies, both
20 large and small and both within the Center's original
21 service region and in other regions, to improve man-
22 ufacturing, product design, workforce training, and
23 production in those specific technical fields.

24 "(2) Industrial service facilities which provide
25 tools to help companies with the low-cost, low-vol-

1 ume, rapid prototyping of a range of new products
 2 and the refinement of the manufacturing and proc-
 3 ess technologies necessary to make these products.

4 “(3) Programs to assist small and medium-
 5 sized manufacturers and their employees in the Cen-
 6 ter’s region to learn and apply the technologies,
 7 techniques, and processes associated with systems
 8 management technology, electric commerce, or im-
 9 proving manufacturing productivity.

10 “(4) Industry-lead demonstration programs
 11 that explore the value of innovative nonprofit manu-
 12 facturing technology consortia to provide ongoing re-
 13 search, technology transfer, and worker training as-
 14 sistance for industrial members. An award under
 15 this paragraph shall be for no more than \$500,000
 16 per year, and shall be subject to renewal after a 1-
 17 year demonstration period.

18 **SEC. 215. STATE TECHNOLOGY EXTENSION PROGRAM.**

19 (a) Section 26(a) of the National Institute of Stand-
 20 ards and Technology Act (15 U.S.C. 2781(a)), is amend-
 21 ed—

22 (1) by inserting immediately after “(a)” the fol-
 23 lowing new sentence: “There is established within
 24 the Institute a State Technology Extension Pro-
 25 gram.”; and

1 (2) by inserting “through that Program” imme-
2 diately after “technical assistance”.

3 (b) Section 26 of the National Institute of Standards
4 and Technology Act (15 U.S.C. 2781) is amended by add-
5 ing at the end the following new subsection:

6 “(c) In addition to the general authorities listed in
7 subsection (b) of this section, the State Technology Exten-
8 sion Program also shall, through merit-based competitive
9 review processes and as authorizations and appropriations
10 permit—

11 “(1) make awards to States and conduct work-
12 shops, pursuant to section 5121(b) of the Omnibus
13 Trade and Competitiveness Act of 1988, in order to
14 help States improve their planning and coordination
15 of technology extension activities;

16 “(2) assist States, particularly States which his-
17 torically have had no manufacturing or technology
18 extension programs or only small programs, to plan,
19 develop, and coordinate such programs and to help
20 bring those State programs to a level of performance
21 where they can apply successfully for awards to es-
22 tablish Manufacturing Outreach Centers, Regional
23 Centers for the Transfer of Manufacturing Tech-
24 nology, or both;

1 “(3) support industrial modernization dem-
2 onstration projects to help States create networks
3 among small manufacturers for the purpose of facili-
4 tating technical assistance, group services, and im-
5 proved productivity and competitiveness;

6 “(4) support State efforts to develop and test
7 innovative ways to help small and medium-sized
8 manufacturers improve their technical capabilities;

9 “(5) support State efforts designed to help
10 small manufacturers in rural as well as urban areas
11 improve and modernize their technical capabilities,
12 including, as appropriate, interstate efforts to
13 achieve such end;

14 “(6) support State efforts to assist interested
15 small defense manufacturing firms to convert their
16 production to nondefense and dual-use purposes;

17 “(7) support worker technology education pro-
18 grams in the States at institutions such as research
19 universities, community colleges, labor education
20 centers, labor-management committees, and worker
21 organizations in production technologies critical to
22 the Nation’s future, with an emphasis on high-per-
23 formance work systems, the skills necessary to use
24 advanced manufacturing systems well, and best pro-
25 duction practice; and

1 “(8) help States develop programs to train per-
2 sonnel who in turn can provide technical skills to
3 managers and workers of manufacturing firms.”.

4 **SEC. 216. AMERICAN WORKFORCE QUALITY PARTNER-**
5 **SHIPS.**

6 (a) PROGRAM AUTHORIZED.—(1) The Secretary,
7 after consultation with the Secretary of Labor and the
8 Secretary of Education, may make awards to eligible ap-
9 plicants to establish and operate American workforce qual-
10 ity partnerships in accordance with the provisions of this
11 section. The purpose of these partnerships is to provide
12 training to industrial employees, particularly in order to
13 enable them to utilize best current manufacturing tech-
14 nologies and practices, including total quality management
15 techniques.

16 (2) An American workforce quality partnership shall
17 be a collaboration between—

18 (A) one or more technology-based or manufac-
19 turing sector firms, in conjunction with a labor orga-
20 nization when appropriate or worker representatives
21 or employee representatives; and

22 (B) a local community or technical college,
23 other appropriate institution of higher education, a
24 vocational training institution, a Regional Center for
25 the Transfer of Manufacturing Technology, a Manu-

1 facturing Outreach Center, or a consortium of such
2 institutions,
3 to train the employees of the participating industrial firms
4 through both workplace-based and classroom-based train-
5 ing programs.

6 (b) AWARDS.—(1) Awards made under this section
7 may be for a period of 5 years. The Federal share of the
8 cost of an American workforce quality partnership may
9 not exceed 50 percent of the total cost of the partnership.
10 The non-Federal share of such costs may be provided in-
11 cash or in-kind, fairly valued.

12 (2) The Secretary shall make awards under this sec-
13 tion on a competitive basis.

14 (c) USE OF FUNDS.—(1) An American workplace
15 quality partnership may use Federal funds for—

16 (A) the direct costs of workplace-based and
17 classroom-based training in advanced technical, tech-
18 nological, and industrial management, skills, and
19 training for the implementation of total quality man-
20 agement strategies, or other competitiveness strate-
21 gies, contained in the plan;

22 (B) the purchase or lease of equipment or other
23 materials for the purpose of instruction to aid in
24 training;

1 (C) the development of in-house curricula or
2 coursework or other training-related programs, in-
3 cluding the training of teachers and other eligible
4 participants to utilize such curricula or coursework;
5 and

6 (D) reasonable administrative expenses and
7 other indirect costs of operating the partnership
8 which may not exceed 10 percent of the total cost
9 of the program.

10 (2) Federal funds may not be used for nontraining
11 related costs of adopting new competitive strategies in-
12 cluding the replacement of manufacturing equipment,
13 product redesign and manufacturing facility construction
14 costs, or salary compensation of the partners' employees.
15 Grants shall not be made under this section for programs
16 that will impair any existing program, contract, or agree-
17 ment without the written concurrence of the parties to
18 such program, contract, or agreement.

19 (d) ADVISORY BOARDS.—Each partnership receiving
20 assistance under this section shall establish an advisory
21 board, which shall—

22 (1) include representatives from participating
23 firms, labor organizations or worker representatives,
24 and the education partners; and

1 (2) advise the partnership on the direction, poli-
2 cies, and activities of the partnership, including
3 training, instruction, and related issues.

4 **SEC. 217. REPORT ON OPTIONS FOR ACCELERATING THE**
5 **ADOPTION OF NEW MANUFACTURING EQUIP-**
6 **MENT.**

7 Within one year of the date of enactment of this Act,
8 the Secretary shall submit to Congress a report on—

9 (1) the degree to which both small and large
10 manufacturing enterprises in the United States have
11 difficulty obtaining financing for the purpose of pur-
12 chasing new equipment and modernizing operations;

13 (2) the policies and practices followed in other
14 industrialized countries to help manufacturing firms
15 obtain financing for modernization;

16 (3) the advantages, disadvantages, and costs of
17 major options by which the Federal Government
18 might help stimulate the flow of capital to manufac-
19 turers and thus accelerate industrial modernization,
20 including—

21 (A) creation of a Government-sponsored
22 enterprise to stimulate the flow of capital to
23 manufacturing;

24 (B) increasing technical advice to banks
25 and other financial institutions, perhaps

1 through the National Manufacturing Outreach
2 Program, in order to increase their ability to
3 judge whether or not individual manufacturers
4 have sound modernization plans; and
5 (C) tax incentives.

6 **Subtitle B—National Science Foun-**
7 **dation Manufacturing Programs**

8 **SEC. 221. NATIONAL SCIENCE FOUNDATION MANUFACTUR-**
9 **ING ACTIVITIES.**

10 (A) IN GENERAL.—The Director of the National
11 Science Foundation, after, as appropriate, consultation
12 with the Secretary, the Under Secretary, and the Director,
13 shall—

14 (1) work with the United States industry to
15 identify areas of research in manufacturing tech-
16 nologies and practices that offer the potential to im-
17 prove United States productivity, competitiveness,
18 and employment;

19 (2) support research at United States univer-
20 sities to improve manufacturing technologies and
21 practices; and

22 (3) work with the Technology Administration
23 and the Institute and, as appropriate, other Federal
24 agencies to accelerate the transfer to United States

1 industry of manufacturing research and innovations
2 developed at universities.

3 (b) ENGINEERING RESEARCH CENTERS AND INDUS-
4 TRY/UNIVERSITY COOPERATIVE RESEARCH CENTERS.—
5 The Director of the National Science Foundation shall
6 strengthen and expand the number of Engineering Re-
7 search Centers and strengthen and expand the Industry/
8 University Cooperative Research Centers Program with
9 the goals of increasing the engineering talent base versed
10 in technologies critical to the Nation's future, with empha-
11 sis on advanced manufacturing, and of advancing fun-
12 damental engineering knowledge in these technologies. At
13 least one Engineering Research Center shall have a re-
14 search and education focus on the concerns of traditional
15 manufacturers, including small and medium-sized firms
16 that are trying to modernize their operations. Awards
17 under this subsection shall be made on a competitive,
18 merit review basis. Such awards may include support for
19 acquisition of instrumentation, equipment, and facilities
20 related to research and education activities of the Centers
21 and support for undergraduate students to participate in
22 the activities of the Centers.

23 (c) GRADUATE TRAINEESHIPS.—The Director of the
24 National Science Foundation, in consultation with the
25 Secretary, may establish a program to provide traineeships

1 to graduate students at institutions of higher education
2 within the United States who choose to pursue masters
3 or doctoral degrees in manufacturing engineering.

4 (d) MANUFACTURING MANAGERS IN THE CLASS-
5 ROOM PROGRAM.—The Director of the National Science
6 Foundation, in consultation with the Secretary, may es-
7 tablish a program to provide fellowships, on a cost-shared
8 basis, to individuals from industry with experience in man-
9 ufacturing to serve for 1 or 2 years as instructors in man-
10 ufacturing at 2-year community and technical colleges in
11 the United States. In selecting fellows, the Director of the
12 National Science Foundation shall place special emphasis
13 on supporting individuals who not only have expertise and
14 practicable experience in manufacturing but who also will
15 work to foster cooperation between 2-year colleges and
16 nearby manufacturing firms.

17 (e) PROGRAMS TO TEACH TOTAL QUALITY MANAGE-
18 MENT.—The Director of the National Science Foundation,
19 in consultation with the Secretary, the Under Secretary,
20 and the Director, may establish a program to develop in-
21 novative curricula, courses, and materials for use by insti-
22 tutions of higher education for instruction in total quality
23 management and related management practices, in order
24 to help improve the productivity of United States industry.

TITLE III—CRITICAL TECHNOLOGIES

SEC. 301. FINDINGS.

The Congress finds that—

(1) the rapid, effective use of advanced technologies in the design and production of products is a key determinant of economic competitiveness;

(2) investment in the development and adoption of advanced technology contributes significantly to long-term economic growth and employment;

(3) the governments of our most successful competitor nations in the global marketplace have created supportive structures and programs that have been effective in helping their domestic industries increase their global market shares;

(4) agriculture and aerospace are two examples of industries that have achieved commercial success with strong support from the United States Government; and

(5) the United States Government must promote and facilitate the creation, development, and adoption of advanced technologies to ensure long-term economic prosperity for the United States.

1 **Subtitle A—Advanced Technology**
2 **Program and Related**

3 **SEC. 311. DEVELOPMENT OF PLAN FOR THE ADVANCED**
4 **TECHNOLOGY PROGRAM.**

5 The Secretary, acting through the Under Secretary
6 and the Director, shall, within 6 months after the date
7 of enactment of this Act, submit to the Congress a plan
8 for the expansion of the Advanced Technology Program
9 established under section 28 of the National Institute of
10 Standards and Technology Act (15 U.S.C. 278n), with
11 specific consideration given to—

12 (1) closer coordination and cooperation with the
13 Defense Advanced Research Projects Agency and
14 other Federal research and development agencies as
15 appropriate;

16 (2) establishment of staff positions that can be
17 filled by industrial or technical experts for a period
18 of one to two years;

19 (3) broadening of the scope of the program to
20 include as many critical technologies as is appro-
21 priate;

22 (4) changes that may be needed when annual
23 funds available for grants under the Program reach
24 levels of \$200,000,000 and \$500,000,000; and

1 (5) administrative steps necessary for Program
2 support of large-scale industry-led consortia similar
3 to, or possibility eventually including, the Semi-
4 conductor Manufacturing Technology Institute.

5 **SEC. 312. ADVANCED TECHNOLOGY PROGRAM SUPPORT OF**
6 **LARGE-SCALE JOINT VENTURES.**

7 Section 28 of the National Institute of Standards and
8 Technology Act (15 U.S.C. 278n) is amended by adding
9 at the end the following new subsection:

10 “(k) In addition to the general authority under this
11 section to provide financial assistance to joint ventures,
12 the Secretary, through the Director, also may, as per-
13 mitted by levels of authorizations and appropriations, pro-
14 vide financial support to large-scale joint ventures request-
15 ing \$20 million or more a year in Department funds. Any
16 such support shall be subject to the matching funds re-
17 quirements of in subsection (b)(1)(B)(ii) of this section,
18 except that the Secretary may provide assistance to such
19 large-scale joint ventures for up to 7 years. The Secretary
20 may work with industrial groups to develop such proposed
21 large-scale joint ventures and shall give preference to pro-
22 posals which represent a broad spectrum of companies for
23 a given industry and which focus on either speeding the
24 commercialization of important new technologies or in ac-
25 celerating the development, testing, and deployment of val-

1 uable new process technologies. The Secretary and Direc-
 2 tor, as appropriate, shall obtain independent technical re-
 3 view of industry proposals submitted under this sub-
 4 section.”.

5 **SEC. 313. TECHNICAL AMENDMENTS.**

6 Section 28 of the National Institute of Standards and
 7 Technology Act (15 U.S.C. 278n) is amended—

8 (1) in subsection (b)(1)(B)(ii), by striking “pro-
 9 vision of a minority share of the cost of such joint
 10 ventures for up to 5 years” and inserting in lieu
 11 thereof “the option of provision of either—

12 “(I) a minority share of the cost of
 13 such joint ventures for up to 5 years; or

14 “(II) only direct costs, and not indi-
 15 rect costs, profits, or management fees, for
 16 up to 5 years”; and

17 (2) by adding at the end the following new sub-
 18 section:

19 “(k) Notwithstanding subsections (b)(1)(B)(ii) and
 20 (d)(3) the Director may grant an extension of not to ex-
 21 ceed 6 months beyond the deadlines established under
 22 those subsections for joint venture and single applicant
 23 awardees to expend Federal funds to complete their
 24 projects, if such extension may be granted with no addi-
 25 tional cost to the Federal Government.”.

1 **SEC. 314. TECHNOLOGY MONITORING AND COMPETITIVE**
2 **ASSESSMENTS.**

3 Section 101(e) of the Stevenson-Wydler Technology
4 Innovation Act of 1980, as redesignated by section
5 213(b)(2) of this Act, is amended to read as follows:

6 “(e) OFFICE OF TECHNOLOGY MONITORING AND
7 COMPETITIVE ASSESSMENT.—(1) The Secretary, through
8 the Under Secretary, shall establish within the Technology
9 Administration an Office of Technology Monitoring and
10 Competitive Assessment, to collect, evaluate, assess, and
11 disseminate information on—

12 “(A) foreign science and technology, specifically
13 information assessing foreign capabilities relative to
14 the United States; and

15 “(B) policies and programs used by foreign gov-
16 ernments and industries to develop and apply eco-
17 nomically important critical technologies, how these
18 policies and programs compare with public and pri-
19 vate activities in the United States, and the effects
20 that these foreign policies and programs have on the
21 competitiveness of United States industry; and

22 “(C) the way in which the economic competi-
23 tiveness of United States industry can be enhanced
24 through Federal programs, including Department of
25 Commerce programs, and evaluations of the effec-
26 tiveness of Federal technology programs in helping

1 to promote United States industrial competitiveness
2 and economic growth.

3 “(2) Based on the information gathered under para-
4 graph (1) of this subsection, the President, with the assist-
5 ance of the Secretary, shall submit to Congress an annual
6 report on United States technology and competitiveness
7 analyzing the condition of United States technology rel-
8 ative to major trading partners, key trends in foreign tech-
9 nology and competitiveness policies and targeting, and the
10 degree to which Federal programs are helping the United
11 States to stay competitive with other countries.

12 “(3) The Office of Technology Monitoring and Com-
13 petitive Assessment is authorized to—

14 “(A) act as a focal point within the Federal
15 Government for the collection and dissemination, in-
16 cluding electronic dissemination, of information on
17 foreign process and product technologies, including
18 information collected under the Japanese Technical
19 Literature Program;

20 “(B) coordinate the extensive foreign technology
21 monitoring and assessment activities already under
22 way in the Federal Government;

23 “(C) act as an electronic clearinghouse for this
24 information or otherwise provide for this function;

1 “(D) direct and fund the collection of additional
2 information;

3 “(E) direct and fund analysis of foreign re-
4 search and development activities and technical ca-
5 pabilities, particularly in those technical areas where
6 the United States is considered to be at par or lag-
7 ging foreign capabilities;

8 “(F) establish a program to identify technical
9 areas needing a full-scale technical evaluation, and
10 provide grants, on a cost-shared basis, to private
11 sector or government-industry joint ventures, to con-
12 duct the evaluation;

13 “(G) establish and administer a fellowship pro-
14 gram to support Technology Fellows in those coun-
15 tries that are major competitors of the United
16 States in critical technologies to collect and provide
17 initial analysis of information on foreign science and
18 technology capabilities; and

19 “(H) work with the Department of State to
20 place technical experts from the Institute and other
21 Federal laboratories into United States embassies to
22 serve as technology attaches and counsellors.

23 **SEC. 315. COMMERCE TECHNOLOGY ADVISORY BOARD.**

24 Title I of the Stevenson-Wydler Technology Innova-
25 tion Act of 1980 (as amended by title II of this Act) is

1 further amended by adding at the end thereof the follow-
2 ing new section:

3 **“SEC. 113. COMMERCE TECHNOLOGY ADVISORY BOARD.**

4 “(a) ESTABLISHMENT.—There is established a Com-
5 merce Technology Advisory Board (hereafter in this sec-
6 tion referred to as the ‘Advisory Board’), the purpose of
7 which is to advise the Secretary, Under Secretary, and Di-
8 rector regarding ways in which to—

9 “(1) promote the development and rapid appli-
10 cation of advanced commercial technologies, includ-
11 ing advanced manufacturing technologies;

12 “(2) strengthen the programs of the Technology
13 Administration; and

14 “(3) generally improve the global competitive-
15 ness of industries within the United States.

16 “(b) COMPOSITION.—The Advisory Board shall be
17 composed of at least 17 members, appointed by the Under
18 Secretary from among individuals who, because of their
19 experience and accomplishments in technology develop-
20 ment, business development, or finance are exceptionally
21 qualified to analyze and formulate policy that would im-
22 prove the global competitiveness of industries in the Unit-
23 ed States. The Under Secretary shall designate 1 member
24 to serve as chairman. Membership of the Advisory Board
25 shall be composed of—

1 “(1) representatives of—

2 “(A) United States small businesses;

3 “(B) other United States manufacturers;

4 “(C) research universities and independent
5 research institutes;

6 “(D) State and local government agencies
7 involved in industrial extension;

8 “(E) national laboratories;

9 “(F) industrial, worker, and professional
10 organizations; and

11 “(G) financial organizations; and

12 “(2) other individuals that possess important
13 insight to issues of national competitiveness.

14 “(c) MEETINGS.—(1) The chairman shall call the
15 first meeting of the Advisory Board not later than 90 days
16 after the date of enactment of this Act.

17 “(2) The Advisory Board shall meet at least once
18 every 6 months, and at the call of the Under Secretary.

19 “(d) TRAVEL EXPENSES.—Members of the Advisory
20 Board, other than full-time employees of the United
21 States, shall be allowed travel expenses in accordance with
22 subchapter I of chapter 57 of title 5, United States Code,
23 while engaged in the business of the Advisory Board.

1 “(e) CONSULTATION.—In carrying out this section,
2 the Under Secretary shall consult with other agencies, as
3 appropriate.

4 “(f) TERMINATION.—Section 14 of the Federal Advi-
5 sory Committee Act shall not apply to the Advisory
6 Board.”.

7 **SEC. 316. STUDY OF SEMICONDUCTOR LITHOGRAPHY**
8 **TECHNOLOGIES.**

9 Within 9 months after the date of enactment of this
10 Act, the Critical Technologies Institute established under
11 section 822 of the National Defense Authorization Act for
12 Fiscal Year 1991 (in this section referred to as the “Insti-
13 tute”) shall, after consultation with the private sector and
14 appropriate officials from other Federal agencies, submit
15 to the Committee on Commerce, Science, and Transpor-
16 tation of the Senate and the Committee on Science, Space,
17 and Technology of the House of Representatives a report
18 on advanced lithography technologies for the production
19 of semiconductor devices. The report shall include the In-
20 stitute’s evaluation of the likely technical and economic
21 advantages and disadvantages of each such technology, an
22 analysis of current private and Government research to
23 develop each such technology, and any recommendations
24 the Institute may have regarding future Federal support
25 for research and development in advanced lithography.

1 **Subtitle B—Technology Financing**
2 **Pilot Programs**

3 **SEC. 321. FINDINGS AND PURPOSE.**

4 (a) FINDINGS.—Congress finds and declares the fol-
5 lowing:

6 (1) In recent years, financing from venture cap-
7 italists and banks appears to have become more dif-
8 ficult for technology firms in the United States to
9 obtain.

10 (2) While tax incentives are often the preferred
11 method to help firms accelerate the development,
12 commercialization, and production of advanced tech-
13 nology products, these incentives are of limited value
14 to those firms, including start-up firms, which have
15 limited revenues but nonetheless provide much of the
16 Nation’s innovation and new employment.

17 (3) Difficulties in obtaining financing particu-
18 larly hurts those technology firms which face foreign
19 competitors which have received substantial direct or
20 indirect financial help from their governments.

21 (4) The Nation would benefit from pilot pro-
22 grams which involve Government-industry partner-
23 ships to develop and test innovative industry-led
24 methods to increase the amount of financing avail-
25 able to United States technology firms.

1 (b) PURPOSE.—It is the purpose of Congress in this
2 subtitle to establish, under the Department of Commerce’s
3 Technology Administration, three experimental technology
4 financing pilot programs.

5 **SEC. 322. CIVILIAN TECHNOLOGY LOAN PROGRAM.**

6 (a) AUTHORITY TO MAKE LOANS.—The Secretary of
7 Commerce may make loans—

8 (1) acting through the Under Secretary of
9 Commerce for technology, to small and medium
10 sized businesses eligible for assistance under section
11 28 of the National Institute of Standards and Tech-
12 nology Act (15 U.S.C. 278n), to the extent provided
13 in section 504(b) of the Congressional Budget Act of
14 1974; or

15 (2) acting through critical technologies develop-
16 ment companies licensed under section 323 of this
17 title, to small and medium sized businesses.

18 (b) PURPOSE.—Loans under this section shall be for
19 growth, modernization, and expansion of small and me-
20 dium sized businesses engaged in research, development,
21 demonstration, or exploitation of advanced technologies
22 and products, including those in fields such as automation,
23 electronics, advanced materials, biotechnology, and optical
24 technologies.

1 (c) INTEREST RATE, TERMS, AND CONDITIONS.—

2 Loans under this section shall be made at an interest rate
3 equal to the Government borrowing rate plus an insurance
4 surcharge of up to 2 percent, and shall be subject to such
5 terms and conditions as the Secretary may prescribe.

6 **SEC. 323. ASSISTANCE TO CRITICAL TECHNOLOGY INVEST-**
7 **MENT COMPANIES.**

8 (a) IN GENERAL.—(1) The Secretary, through the
9 Under Secretary, is authorized to provide financial assist-
10 ance to critical technology investment companies licensed
11 under this section, for the purpose of stimulating and ex-
12 panding the flow of private capital to qualified joint ven-
13 tures and qualified individual firms in order to help them
14 finance the development and commercialization of critical
15 civilian technologies.

16 (2) Each critical technology investment company li-
17 censed under this section may provide venture capital to
18 qualified joint ventures and qualified individual firms, in
19 such manner and under such terms as the licensee may
20 fix in accordance with the regulations of the Secretary.
21 Venture capital provided to incorporated qualified joint
22 ventures and individual firms may be provided directly or
23 in cooperation with other investors, incorporated or unin-
24 corporated, through agreements to participate on an im-
25 mediate basis.

1 (3) Each licensee may make loans, directly or in co-
2 operation with other lenders, incorporated or unincor-
3 porated, through agreements to participate on an imme-
4 diate or deferred basis, to qualified joint ventures and
5 qualified individual firms to provide such ventures and
6 firms with funds needed for sound financing related to de-
7 velopment or utilization of critical civilian technologies.

8 (4) This section shall be carried out in a manner that
9 will ensure the maximum participation of private financial
10 sources and ensure prudent diversification and sound
11 management of operations.

12 (b) REQUIREMENTS AND AUTHORITIES.—Except as
13 provided in subsections (c) and (d) of this section, the Sec-
14 retary shall, in providing financial assistance to licensees
15 under the provisions of this section, follow the statutory
16 requirements and use the statutory authorities which
17 apply to the Small Business Administration's Small Busi-
18 ness Investment Program, as set forth in subchapter 14B
19 of title 15, United States Code (15 U.S.C. 681 et seq.).
20 Any amendments to subchapter 14B enacted after the
21 date of enactment of this title shall not apply to this sec-
22 tion unless explicitly provided for in statute.

23 (c) ADDITIONAL AUTHORITIES.—In addition to the
24 authorities provided to the Secretary under subsection (b)
25 of this section, the Secretary is authorized to—

1 (1) purchase nonparticipating preferred securi-
2 ties from licensed critical technology investment
3 companies as one way to provide financial assistance
4 to those companies;

5 (2) issue trust certificates representing owner-
6 ship of all or a fractional part of preferred securities
7 issued by licensees and guaranteed by the Secretary
8 under this section, with such trust certificates based
9 on and backed by a trust or pool approved by the
10 Secretary and composed of preferred securities and
11 such other contractual obligations as the Secretary
12 may undertake to facilitate the sale of such trust
13 certificates;

14 (3) guarantee, upon such terms and conditions
15 as are deemed appropriate, the timely payment of
16 the principal of and interest on trust certificates is-
17 sued by the Secretary or the Secretary's agent for
18 purposes of this section, provided that such guaran-
19 tee shall be limited to the extent of the redemption
20 price of and dividends on the preferred securities,
21 plus any related contractual obligations, which com-
22 pose the trust or pool; and

23 (4) issue its own rules and regulations concern-
24 ing how it will carry out this section under the appli-
25 cable requirements and authorities.

1 (d) OTHER PROVISIONS.—(1) Amounts received by
2 the Secretary from the payment of dividends and the re-
3 demption of preferred securities pursuant to this section,
4 and fees paid to the United States by a licensee pursuant
5 to this section, shall be deposited in an account established
6 by the Secretary and shall be available solely for carrying
7 out this section, to the extent provided in advance in ap-
8 propriations Acts.

9 (2) Nothing in this section or in any other provision
10 of law imposes any liability on the United States or the
11 Secretary with respect to any obligations entered into, or
12 stocks issued, or commitments made by any licensee oper-
13 ating under this section.

14 **SEC. 324. ASSISTANCE TO STATE TECHNOLOGY DEVELOP-**
15 **MENT PROGRAMS.**

16 (a) IN GENERAL.—The Secretary, through the Under
17 Secretary, may provide financial, technical, and business
18 assistance to programs run by or chartered by State gov-
19 ernments for the purpose of accelerating the development
20 and commercialization of critical civilian technologies, in-
21 cluding technologies developed by universities and colleges
22 within the States. Such State technology development pro-
23 grams may—

1 (1) directly fund critical civilian technology de-
2 velopment projects at qualified joint ventures and
3 qualified individual firms; and

4 (2) when appropriate, assist intermediary orga-
5 nizations, including universities, to develop new criti-
6 cal civilian technologies to the point where qualified
7 joint ventures and qualified individual firms will in-
8 vest in their further development and commercializa-
9 tion.

10 (b) FINANCIAL ASSISTANCE.—(1) The Secretary may
11 make awards for up to three years to any State technology
12 development program which meets the eligibility require-
13 ments of paragraph (2). State programs which win awards
14 may reapply if they still meet eligibility requirements. Any
15 financial assistance from the Secretary to State technology
16 development programs shall be made only through a com-
17 petitive, merit-reviewed process.

18 (2) A State technology development program must
19 meet the following requirements before it shall be eligible
20 to apply for and receive assistance under this section:

21 (A) at least one-third of the cost of the proposal
22 to which such assistance applies must be provided by
23 such State program; and

24 (B) the State program must demonstrate that
25 any technology or intellectual property developed

1 under the program shall be made available only to
2 joint ventures and individual firms which legally
3 commit to manufacture substantially in the United
4 States any products resulting from any project fund-
5 ed in whole or in part by Federal funds provided
6 under this section.

7 **TITLE IV—ADDITIONAL COM-**
8 **MERCE DEPARTMENT PROVI-**
9 **SIONS**

10 **SEC. 401. INTERNATIONAL STANDARDIZATION.**

11 (a) FINDINGS.—The Congress finds that—

12 (1) private sector consensus standards are es-
13 sential to the timely development of competitive
14 products;

15 (2) Federal Government contribution of re-
16 sources, more active participation in the voluntary
17 standards process in the United States, and assist-
18 ance, where appropriate, through government to gov-
19 ernment negotiations, can increase the quality of
20 United States standards, increase their compatibility
21 with the standards of other countries, and ease ac-
22 cess of United States-made products to foreign mar-
23 kets; and

24 (3) the Federal Government, working in co-
25 operation with private sector organizations including

1 trade associations, engineering societies, and tech-
2 nical bodies, can effectively promote United States
3 Government use of United States consensus stand-
4 ards and, where appropriate, the adoption and Unit-
5 ed States Government use of international stand-
6 ards.

7 (b) STANDARD PILOT PROGRAM.—Section 104(e) of
8 the American Technology Preeminence Act of 1991 is
9 amended—

10 (1) by inserting “(1)” before “Pursuant to
11 the”; and

12 (2) by adding at the end the following new
13 paragraph:

14 “(2) As necessary and appropriate, the Institute shall
15 expand the program established under section 112 of the
16 National Institute of Standards and Technology Author-
17 ization Act for Fiscal Year 1989 (15 U.S.C. 272 note)
18 by extending the existing program and by entering into
19 additional contracts with non-Federal organizations rep-
20 resenting United States companies, as such term is de-
21 fined in section 28(d)(9)(B) of the National Institute of
22 Standards and Technology Act (15 U.S.C.
23 278n(d)(9)(B)). Such contracts shall require cost sharing
24 between Federal and non-Federal sources for such pur-
25 poses. In awarding such contracts, the Institute shall seek

1 to promote and support the dissemination of United
2 States technical standards to additional foreign countries,
3 in cooperation with governmental bodies, private organiza-
4 tions including standards setting organizations and indus-
5 try, and multinational institutions that promote economic
6 development. The organizations receiving such contracts
7 may establish training programs to bring to the United
8 States foreign standards experts for the purpose of receiv-
9 ing in-depth training in the United States standards sys-
10 tem.”.

11 (c) REPORT ON GLOBAL STANDARDS.—The Sec-
12 retary, in consultation with the Institute and the Com-
13 merce Technology Advisory Board established under sec-
14 tion 204 of this Act, shall submit to the Congress a report
15 describing the appropriate roles of the Department of
16 Commerce in aid to United States companies in achieving
17 conformity assessment and accreditation and otherwise
18 qualifying their products in foreign markets, and in the
19 development and promulgation of domestic and global
20 product and quality standards, including a discussion of
21 the extent to which each of the policy options provided
22 in such Office of Technology Assessment report contrib-
23 utes to meeting the goals of—

24 (1) increasing the international adoption of
25 standards beneficial to United States industries; and

1 (2) improving the coordination of United States
2 representation to international standards setting
3 bodies.

4 (d) **FEDERAL GOVERNMENT ROLE.**—Section 508(a)
5 of the American Technology Preeminence Act of 1991 is
6 amended by adding at the end the following new para-
7 graph:

8 “(6) The appropriate role of the Federal Gov-
9 ernment in aid to United States companies in
10 achieving conformity assessment and accreditation
11 and otherwise qualifying their products in foreign
12 markets, and in the development and promulgation
13 of domestic and global product and quality stand-
14 ards, including a discussion of the extent to which
15 each of the policy options provided in the Office of
16 Technology Assessment report on global standards
17 contributes to meeting the goal of improving the co-
18 ordination of United States representation to inter-
19 national standards-setting bodies.

20 **SEC. 402. MALCOLM BALDRIGE AWARD AMENDMENTS.**

21 (a) Section 108(c)(3) of the Stevenson-Wydler Tech-
22 nology Innovation Act of 1980, as so redesignated by sec-
23 tion 206(b)(4) of this Act, is amended to read as follows:

1 “(3) No award shall be made within any category or
2 subcategory if there are no qualifying enterprises in that
3 category or subcategory.”.

4 (b)(1) Section 108(c)(1) of the Stevenson-Wydler
5 Technology Innovation Act of 1980 (15 U.S.C.
6 3711a(c)(1)) is amended by adding at the end the follow-
7 ing new subparagraph:

8 “(D) Educational institutions.”.

9 (2)(A) Within 1 year after the date of enactment of
10 this Act, the Secretary shall submit to the Congress a re-
11 port containing—

12 (i) criteria for qualification for a Malcolm
13 Baldrige National Quality Award by various classes
14 of educational institutions;

15 (ii) criteria for the evaluation of applications for
16 such awards under section 108(d)(1) of the Steven-
17 son-Wydler Technology Innovation Act of 1980; and

18 (iii) a plan for funding awards described in
19 clause (i).

20 (B) In preparing the report required under subpara-
21 graph (A), the Secretary shall consult with the National
22 Science Foundation and other public and private entities
23 with appropriate expertise, and shall provide for public no-
24 tice and comment.

1 (C) The Secretary shall not accept applications for
2 awards described in subparagraph (A)(i) until after the
3 report required under subparagraph (A) is submitted to
4 the Congress.

5 **SEC. 403. COOPERATIVE RESEARCH AND DEVELOPMENT**
6 **AGREEMENTS.**

7 Section 202(d)(1) of the Stevenson-Wydler Tech-
8 nology Innovation Act of 1980 (15 U.S.C. 3710a(d)(1)),
9 as redesignated by section 206(b)(6) of this Act, is amend-
10 ed by inserting “(including both real and personal prop-
11 erty)” after “or other resources” both places it appears.

12 **SEC. 404. CLEARINGHOUSE ON STATE AND LOCAL INITIA-**
13 **TIVES.**

14 Section 102(a) of the Stevenson-Wydler Technology
15 Innovation Act of 1980, as so redesignated by section
16 206(b)(2) of the Act, as amended by striking “Office of
17 Productivity, Technology, and Innovation” and inserting
18 in lieu thereof “Institute”.

19 **SEC. 405. USE OF DOMESTIC PRODUCTS.**

20 (a) PROHIBITION AGAINST FRAUDULENT USE OF
21 “MADE IN AMERICA” LABELS.—(1) A person shall not
22 intentionally affix a label bearing the inscription of “Made
23 in America”, or any inscription with that meaning, to any
24 product sold in or shipped to the United States, if that
25 product is not a domestic product.

1 (2) A person who violates paragraph (1) shall not be
2 eligible for any contract for a procurement carried out
3 with amounts authorized under this Act and the amend-
4 ments made by this Act, including any subcontract under
5 such a contract pursuant to the debarment, suspension,
6 and ineligibility procedures in subpart 9.4 of chapter 1
7 of title 48, Code of Federal Regulations, or any successor
8 procedures thereto.

9 (b) COMPLIANCE WITH BUY AMERICAN ACT.—(1)
10 Except as provided in paragraph (2), the head of each
11 agency which conducts procurements shall ensure that
12 such procurements are conducted in compliance with sec-
13 tions 2 through 4 of the Act of March 3, 1933 (41 U.S.C.
14 10a through 10c, popularly known as the “Buy American
15 Act”).

16 (2) This subsection shall apply only to procurements
17 made for which—

18 (A) amounts are authorized by this Act, and
19 the amendments made by this Act, to be made avail-
20 able; and

21 (B) solicitations for bids are issued after the
22 date of enactment of this Act.

23 (3) The Secretary, before January 1, 1994, shall re-
24 port to the Congress on procurements covered under this
25 subsection of products that are not domestic products.

1 (c) DEFINITIONS.—For the purposes of this section,
2 the term “domestic product” means a product—

3 (1) that is manufactured or produced in the
4 United States; and

5 (2) at least 50 percent of the cost of the arti-
6 cles, materials, or supplies of which are mined, pro-
7 duced, or manufactured in the United States.

8 **SEC. 406. SEVERABILITY.**

9 If any provision of this Act, or the application thereof
10 to any person or circumstance, is held invalid, the remain-
11 der of this Act and the application thereof to other persons
12 or circumstances shall not be affected thereby.

13 **SEC. 407. WIND ENGINEERING RESEARCH PROGRAM.**

14 (a) SHORT TITLE.—This section may be cited as the
15 “Wind Engineering Program Act of 1992”.

16 (b) FINDINGS AND PURPOSES.—Congress finds the
17 following:

18 (1) Hurricanes and tornadoes kill more Ameri-
19 cans and destroy more property than any other nat-
20 ural disaster.

21 (2) Each year, in the United States, extreme
22 winds cause billions of dollars of damage to homes,
23 schools, and other buildings, roads and bridges, elec-
24 trical power distribution networks, and communica-
25 tions networks.

1 (3) Research on wind and wind engineering has
2 resulted in improved methods for making buildings
3 and other structures less vulnerable to extreme
4 winds, but additional research funding is needed to
5 develop new, improved, and more cost-effective
6 methods of wind-resistant construction.

7 (4) Federal funding for wind engineering re-
8 search has decreased drastically over the last 20
9 years.

10 (5) Wind research has been hampered by a lack
11 of data on near-surface wind speed and distribution
12 during hurricanes, tornadoes, and other severe
13 storms.

14 (6) Many existing methods for wind-resistant
15 construction are inexpensive and easy to implement
16 but often they are not applied because the construc-
17 tion industry and the general public are unaware of
18 such methods.

19 (7) Various Federal agencies have important
20 roles to play in wind engineering research, but at
21 present there is little interagency cooperation in this
22 area.

23 (8) Establishment of a Federal Wind Engineer-
24 ing Program would result in new technologies for
25 wind-resistant construction, broader application of

1 such technologies in construction, and ultimately de-
2 creased loss of life and property due to extreme
3 winds.

4 (c) PURPOSE.—The purpose of this Act is to create
5 a Wind Engineering Program within the National Insti-
6 tute of Standards and Technology, which would—

7 (1) provide for wind engineering research;

8 (2) serve as a clearinghouse for information on
9 wind engineering; and

10 (3) improve interagency coordination on wind
11 engineering research between the National Institute
12 of Standards and Technology, the National Oceanic
13 and Atmospheric Administration, the National
14 Science Foundation, the Federal Aviation Adminis-
15 tration, and other appropriate agencies.

16 (d) ESTABLISHMENT.—Within the National Institute
17 of Standards and Technology, there shall be established
18 a Wind Engineering Program which shall—

19 (1) conduct research and development, in co-
20 operation with the private sector and academia, on
21 new methods for mitigating wind damage due to tor-
22 nadoes, hurricanes, and other severe storms;

23 (2) fund construction and maintenance of wind
24 tunnels and other research facilities needed for wind
25 engineering research;

1 (3) promote the application of existing methods
2 for, and research results on, reducing wind damage
3 to buildings that are usually incompletely- or non-en-
4 gineered, such as single family dwellings, mobile
5 homes, light industrial buildings, and small commer-
6 cial structures;

7 (4) transfer technology developed in wind engi-
8 neering research to the private sector so that it may
9 be applied in building codes, design practice, and
10 construction;

11 (5) conduct, in conjunction with the National
12 Oceanic and Atmospheric Administration, post-disas-
13 ter research following hurricanes, tornadoes, and
14 other severe storms to evaluate the vulnerability of
15 different types of buildings to extreme winds;

16 (6) serve as a point of contact for dissemination
17 of research information on wind engineering and
18 work with the private sector to develop education
19 and training programs on construction techniques,
20 developed from research results, for reducing wind
21 damage;

22 (7) work with the National Oceanic and Atmos-
23 pheric Administration, the Federal Aviation Admin-
24 istration, and other agencies as is appropriate, on

1 meteorology programs to collect and disseminate
 2 more data on extreme wind events; and

3 (8) work with the National Science Foundation
 4 to support and expand basic research on wind engi-
 5 neering.

6 **TITLE V—AUTHORIZATIONS OF** 7 **APPROPRIATIONS**

8 **SEC. 501. TECHNOLOGY ADMINISTRATION.**

9 (a) AUTHORIZATION OF APPROPRIATIONS.—There
 10 are authorized to be appropriated to the Secretary, to
 11 carry out the activities of the Under Secretary and the
 12 Assistant Secretary of Commerce for Technology Policy—

13 (1) for the Office of the Under Secretary,
 14 \$5,000,000 for fiscal year 1994 and \$8,000,000 for
 15 fiscal year 1995;

16 (2) for Technology Policy \$5,000,000 for fiscal
 17 year 1994 and \$6,000,000 for fiscal year 1995;

18 (3) for Japanese Technical Literature,
 19 \$2,000,000 for fiscal year 1994 and \$3,000,000 for
 20 fiscal year 1995; and

21 (4) for the Office of Technology Monitoring and
 22 Competitive Assessment, \$1,500,000 for fiscal year
 23 1994 and \$2,500,000 for fiscal year 1995.

24 (b) TRANSFERS.—(1) Funds may be transferred
 25 among the line items listed in subsection (a), so long as—

1 (A) the net funds transferred to or from any
2 line item do not exceed 10 percent of the amount
3 authorized for that line item in such subsection;

4 (B) the aggregate amount authorized under
5 subsection (a) is not changed; and

6 (C) the Committee on Commerce, Science and
7 Transportation of the Senate and the Committee on
8 Science, Space, and Technology of the House of
9 Representatives are notified in advance of any such
10 transfer.

11 (2) The Secretary may propose transfers to or from
12 any line item listed in subsection (a) exceeding 10 percent
13 of the amount authorized for such line item, but such pro-
14 posed transfer may not be made unless—

15 (A) a full and complete explanation of any such
16 proposed transfer and the reason therefor are trans-
17 mitted in writing to the Speaker of the House of
18 Representatives, the President of the Senate, and
19 the appropriate authorizing Committees of the
20 House of Representatives and the Senate; and

21 (B) 30 days have passed following the trans-
22 mission of such written explanation.

23 (c) NATIONAL TECHNICAL INFORMATION SERVICE
24 FACILITIES STUDY.—As part of its modernization effort
25 and before signing a new facility lease, the National Tech-

1 nical Information Service, in consultation with the General
 2 Services Administration, shall study and report to Con-
 3 gress on the feasibility of accomplishing all or part of its
 4 modernization by signing a long-term lease with an organi-
 5 zation that agrees to supply a facility and supply and peri-
 6 odically upgrade modern equipment which permits the Na-
 7 tional Technical Information Service to receive, store, ma-
 8 nipulate, and print electronically created documents and
 9 reports and to carry out the other functions assigned to
 10 the National Technical Information Service.

11 **SEC. 502. NATIONAL INSTITUTE OF STANDARDS AND TECH-**
 12 **NOLOGY.**

13 (a) INTRAMURAL SCIENTIFIC AND TECHNICAL RE-
 14 SEARCH AND SERVICES.—(1) There are authorized to be
 15 appropriated to the Secretary, to carry out the intramural
 16 scientific and technical research and services activities of
 17 the Institute, \$250,000,000 for fiscal year 1994 and
 18 \$300,000,000 for fiscal year 1995.

19 (2) Of the amount authorized under paragraph (1)—

20 (A) \$1,000,000 for fiscal year 1994 and
 21 \$1,000,000 for fiscal year 1995 are authorized only
 22 for the evaluation of nonenergy-related inventions;

23 (B) \$9,000,000 for fiscal year 1994 and
 24 \$10,000,000 for fiscal year 1995 are authorized only
 25 for the technical competence fund; and

1 (C) \$5,000,000 for fiscal year 1994 and
2 \$5,000,000 for fiscal year 1995 are authorized only
3 for the standards pilot project established under sec-
4 tion 104(e) of the American Technology Pre-emi-
5 nence Act of 1991.

6 (b) Facilities.—In addition to the amounts author-
7 ized under subsection (a), there are authorized to be ap-
8 propriated to the Secretary \$105,000,000 for each of fis-
9 cal years 1993 and 1995, for the renovation and upgrad-
10 ing of the Institute's facilities. The Institute may enter
11 into a contract for the design work for such purposes only
12 if Federal Government payments under the contract are
13 limited to amounts provided in advance in appropriations
14 Acts.

15 (c) EXTRAMURAL INDUSTRIAL TECHNOLOGY SERV-
16 ICES.—In addition to the amounts authorized under sub-
17 sections (a) and (b), there are authorized to be appro-
18 priated to the Secretary, to carry out the extramural in-
19 dustrial technology services activities of the Institute—

20 (1) for the National Manufacturing Outreach
21 Program, \$150,000,000 for fiscal year 1994 and
22 \$280,000,000 for fiscal year 1995, of which—

23 (A) \$50,000,000 for fiscal year 1994 and
24 \$80,000,000 for fiscal year 1995 are authorized

1 only for the support of Regional Centers for the
2 Transfer of Manufacturing Technology;

3 (B) \$40,000,000 for fiscal year 1994 and
4 \$100,000,000 for fiscal year 1995 are author-
5 ized only for the support of Manufacturing Out-
6 reach Centers;

7 (C) \$40,000,000 for fiscal year 1994 and
8 \$70,000,000 for fiscal year 1995 are authorized
9 only for the State Technology Extension Pro-
10 gram;

11 (D) \$20,000,000 for fiscal year 1994 and
12 \$30,000,000 for fiscal year 1995 are authorized
13 only for the Institute activities in support of the
14 Outreach Program, including support of the
15 Technology Extension Communications Net-
16 work and the associated Clearinghouse; and

17 (2) for the Advanced Technology Program,
18 \$210,000,000 for fiscal year 1994 and
19 \$420,000,000 for fiscal year 1995, of which
20 \$30,000,000 for fiscal year 1994 and \$50,000,000
21 for fiscal year 1995 are authorized only for support
22 of the Advanced Manufacturing Technology Develop-
23 ment Program established under section 303 of the
24 Stevenson-Wydler Technology Innovation Act of
25 1980.

1 (d) WIND ENGINEERING.—(1) There are authorized
2 to be appropriated to the Institute for the purposes of title
3 V of this Act, \$1,000,000 for fiscal year 1994 and
4 \$3,000,000 for fiscal year 1995.

5 (2) Of the amounts appropriated under paragraph
6 (1), no less than 50 percent shall be used for cooperative
7 agreements with the National Oceanic and Atmospheric
8 Administration, the National Science Foundation, and
9 Federal Aviation Administration, or other agencies, for
10 wind engineering research, development of improved prac-
11 tices for structures, and the collection and dissemination
12 of meteorological data needed for wind engineering.

13 **SEC. 503. ADDITIONAL ACTIVITIES OF THE TECHNOLOGY**
14 **ADMINISTRATION.**

15 In addition to the amounts authorized under sections
16 601 and 602, there are authorized to be appropriated to
17 the Secretary—

18 (1) for the Civilian Technology Loan Program
19 established under section 322 of this Act,
20 \$60,000,000 for the period encompassing fiscal
21 years 1994 and 1995;

22 (2) for the Civilian Technologies Venture Cap-
23 ital Program established under section 323 of this
24 Act, \$105,000,000 for the period encompassing fis-
25 cal years 1994 and 1995;

1 (3) for assistance to State Technology Assist-
2 ance programs, as provided under section 324 of
3 this Act, \$25,000,000 for fiscal year 1994 and
4 \$50,000,000 for fiscal year 1995; and

5 (4) for carrying out the American workforce
6 quality partnership program established under sec-
7 tion 216 of this Act \$50,000,000 for fiscal year
8 1994 and \$50,000,000 for fiscal year 1995.

9 Amounts appropriated under paragraph (1) or (2) shall
10 remain available for expenditure through September 30,
11 1996. Of the amounts made available under paragraph (1)
12 for a fiscal year, not more than \$2,000,000 or 10 percent,
13 whichever is greater, shall be available for administrative
14 expenses. Of the amounts made available under paragraph
15 (2) for a fiscal year, not more than \$5,000,000 or 10 per-
16 cent, whichever is greater, shall be available for adminis-
17 trative expenses. The Secretary, through the Under Sec-
18 retary and the Director, may accept the transfer of fund-
19 ing appropriated to any other agency for purposes similar
20 or related to those of the programs established and carried
21 out under title III of the Stevenson-Wydler Technology In-
22 novation Act of 1980, or the programs established and
23 carried out under sections 25 and 26 of the National Insti-
24 tute of Standards and Technology Act, and to use those

1 funds to implement such programs as provided in those
2 statutory provisions.

3 **SEC. 504. NATIONAL SCIENCE FOUNDATION.**

4 In addition to such other sums as may be authorized
5 by other Acts to be appropriated to the Director of the
6 National Science Foundation, there are authorized to be
7 appropriated to that Director, to carry out the provisions
8 of section 221 of this Act, \$50,000,000 for fiscal year
9 1994 and \$75,000,000 for fiscal year 1995.

10 **SEC. 505. AVAILABILITY OF APPROPRIATIONS.**

11 Appropriations made under the authority provided in
12 this title shall remain available for obligation, for expendi-
13 ture, or for obligation and expenditure for periods speci-
14 fied in the Acts making such appropriations.

15 **TITLE VI—INFORMATION INFRA-**
16 **STRUCTURE AND TECH-**
17 **NOLOGY**

18 **SEC. 601. SHORT TITLE.**

19 This title may be cited as the “Information Infra-
20 structure and Technology Act of 1992”.

21 **SEC. 602. FINDINGS AND PURPOSE.**

22 (a) FINDINGS.—The Congress finds the following:

23 (1) High-performance computing and high-
24 speed networks have proven to be powerful tools for

1 improving America's national security, industrial
2 competitiveness, and research capabilities.

3 (2) Federal programs, like the High-Perform-
4 ance Computing Program established by Congress in
5 1991, have played a key role in maintaining United
6 States leadership in high-performance computing,
7 especially in the defense and research sectors.

8 (3) High-performance computing and high-
9 speed networking have the potential to revolutionize
10 many fields, including education, libraries, health
11 care, and manufacturing, if adequate resources are
12 invested in developing the technology needed to do
13 so.

14 (4) The Federal Government should ensure that
15 the technology developed under research and devel-
16 opment programs like the High-Performance Com-
17 puting Program can be widely applied for the benefit
18 of all Americans.

19 (5) A coordinated, interagency program is need-
20 ed to identify and promote development of applica-
21 tions of high-performance computing and high-speed
22 networking which will provide large economic and
23 social benefits to the Nation. Those so-called "Grand
24 Applications" should include tools for teaching, digi-
25 tal libraries of electronic information, computer sys-

1 tems to improve the delivery of health care, and
2 computer and networking technology to promote
3 United States competitiveness.

4 (6) The Office of Science and Technology Pol-
5 icy is the appropriate office to coordinate such a
6 program.

7 (b) PURPOSE.—It is the purpose of this Act to help
8 ensure the widest possible application of high-performance
9 computing and high-speed networking. This requires that
10 the United States Government—

11 (1) expand Federal support for research and
12 development on applications of high-performance
13 computing and high-speed networks for—

14 (A) improving education at all levels, from
15 preschool to adult education, by developing new
16 educational technology;

17 (B) building digital libraries of electronic
18 information accessible over computer networks
19 like the National Research and Education Net-
20 work;

21 (C) improving the provision of health care
22 by furnishing health care providers and their
23 patients with better, more accurate, and more
24 timely information; and

1 (D) increasing the productivity of the Na-
 2 tion's workers, especially in the manufacturing
 3 sector; and

4 (2) improve coordination of Federal efforts to
 5 deploy these technologies in cooperation with the pri-
 6 vate sector as part of an advanced, national informa-
 7 tion infrastructure.

8 **SEC. 603. INFORMATION INFRASTRUCTURE DEVELOPMENT**
 9 **PROGRAM.**

10 The National Science and Technology Policy, Organi-
 11 zation, and Priorities Act of 1976 (42 U.S.C. 6601 et seq.)
 12 is amended by adding at the end the following new title:

13 "TITLE VII—INFORMATION INFRASTRUCTURE
 14 DEVELOPMENT PROGRAM

15 "SEC. 701. The Director of the Office of Science and
 16 Technology Policy, through the Federal Coordinating
 17 Council for Science, Engineering, and Technology (here-
 18 after in this title referred to as the 'Council'), shall, in
 19 accordance with this title—

20 "(1) establish an Information Infrastructure
 21 Development Program (hereafter in this title re-
 22 ferred to as the 'Program') that shall provide for a
 23 coordinated interagency effort to develop tech-
 24 nologies needed to apply high-performance comput-
 25 ing and high-speed networking in education, librar-

1 ies, health care, manufacturing, and other appro-
2 priate fields; and

3 “(2) develop an Information Infrastructure De-
4 velopment Plan (hereafter in this title referred to as
5 the ‘Plan’) describing the goals and proposed activi-
6 ties of the Program.

7 “SEC. 702. (a) The Plan shall contain recommenda-
8 tions for a five-year national effort and shall be submitted
9 to the Congress within one year after the date of enact-
10 ment of this title. The Plan shall be resubmitted upon revi-
11 sion at least once every two years thereafter.

12 “(b) The Plan shall—

13 “(1) establish the goals and priorities for the
14 Program for the fiscal year in which the Plan (or re-
15 vised Plan) is submitted and the succeeding four fis-
16 cal years;

17 “(2) set forth the role of each Federal agency
18 and department in implementing the Plan;

19 “(3) describe the levels of Federal funding for
20 each agency and department, and specific activities,
21 required to achieve the goals and priorities estab-
22 lished under paragraph (1); and

23 “(4) assign particular agencies primary respon-
24 sibility for developing particular Grand Applications

1 of high-performance computing and high-speed net-
2 works.

3 “(c) Accompanying the Plan shall be—

4 “(1) a summary of the achievements of Federal
5 efforts during the preceding fiscal year to develop
6 technologies needed for deployment of an advanced
7 information infrastructure;

8 “(2) an evaluation of the progress made toward
9 achieving the goals and objectives of the Plan;

10 “(3) a summary of problems encountered in im-
11 plementing the Plan; and

12 “(4) any recommendations regarding additional
13 action or legislation which may be required to assist
14 in achieving the purposes of this title.

15 “(d) The Plan shall address, where appropriate, the
16 relevant programs and activities of the following Federal
17 agencies and departments:

18 “(1) The National Science Foundation.

19 “(2) The Department of Commerce, particu-
20 larly the National Institute of Standards and Tech-
21 nology, the National Oceanic and Atmospheric Ad-
22 ministration, and the National Telecommunications
23 and Information Administration.

24 “(3) The National Aeronautics and Space Ad-
25 ministration.

1 “(4) The Department of Defense, particularly
2 the Defense Advanced Research Projects Agency.

3 “(5) The Department of Energy.

4 “(6) The Department of Health and Human
5 Services, particularly the National Institutes of
6 Health and the National Library of Medicine.

7 “(7) The Department of the Interior, particu-
8 larly the United States Geological Survey.

9 “(8) The Department of Education.

10 “(9) The Department of Agriculture, particu-
11 larly the National Agricultural Library.

12 “(10) Such other agencies and departments as
13 the President or the Chairman of the Council con-
14 siders appropriate.

15 “(e) In addition, the Plan shall take into consider-
16 ation the present and planned activities of the Library of
17 Congress, as deemed appropriate by the Library of Con-
18 gress.

19 “(f) The Council shall—

20 “(1) serve as lead entity responsible for devel-
21 opment of the Plan and interagency coordination of
22 the Program;

23 “(2) coordinate the high-performance comput-
24 ing research and development activities of Federal
25 agencies and departments undertaken pursuant to

1 the Plan and report at least annually to the Presi-
2 dent, through the Chairman of the Council, on any
3 recommended changes in agency or departmental
4 roles that are needed to better implement the Plan;

5 “(3) review, prior to the President’s submission
6 to the Congress of the annual budget estimate, each
7 agency and departmental budget estimate in the
8 context of the Plan and make the results of that re-
9 view available to the appropriate elements of the Ex-
10 ecutive Office of the President, particularly the Of-
11 fice of Management and Budget; and

12 “(4) consult and ensure communication between
13 Federal agencies and research, educational, and in-
14 dustry groups and State agencies conducting re-
15 search and development on and using high-perform-
16 ance computing.

17 “(g) The Director of the Office of Science and Tech-
18 nology Policy shall establish an advisory committee on
19 high-performance computing and high-speed networking
20 and their applications, consisting of prominent representa-
21 tives from industry and academia who are specially quali-
22 fied to provide the Council with advice and information
23 on uses of high-performance computing and high-speed
24 networking. The advisory committee shall provide the
25 Council with an independent assessment of—

1 “(1) progress made in implementing the Plan;

2 “(2) the need to revise the Plan;

3 “(3) the balance between the components of the
4 Plan;

5 “(4) whether the research and development
6 funded under the Plan is helping to maintain United
7 States leadership in the application of computing
8 technology;

9 “(5) ways to ensure government-industry co-
10 operation in implementing the Plan; and

11 “(6) other issues identified by the Director.

12 “(h)(1) Each Federal agency and department in-
13 volved in the program shall, as part of its annual request
14 for appropriations to the Office of Management and Budg-
15 et, submit a report to that Office identifying each element
16 of its high-performance computing activities, which—

17 “(A) specifies whether each such element (i)
18 contributes primarily to the implementation of the
19 Plan or (ii) contributes primarily to the achievement
20 of other objectives but aids Plan implementation in
21 important ways; and

22 “(B) states the portion of its request for appro-
23 priations that is allocated to each element.

24 “(2) The Office of Management and Budget shall re-
25 view each such report in light of the goals, priorities, and

1 agency and departmental responsibilities set forth in the
2 Plan, and shall include, in the President's annual budget
3 estimate, a statement of the portion of each appropriate
4 agency or department's annual budget estimate that is al-
5 located to efforts to develop applications of high-perform-
6 ance computing.

7 "SEC. 703. In this title, the following definitions
8 apply:

9 "(1) The term 'Grand Application' means an
10 application of high-performance computing and
11 highspeed networking that will provide large eco-
12 nomic and social benefits to a broad segment of the
13 Nation's populace.

14 "(2) The term 'information infrastructure'
15 means a network of communications systems and
16 computer systems designed to exchange information
17 among all citizens and residents of the United
18 States.'".

19 **SEC. 604. APPLICATIONS FOR EDUCATION**

20 (a) RESPONSIBILITIES OF NATIONAL SCIENCE
21 FOUNDATION AND OTHER AGENCIES.—In accordance
22 with the Plan developed under section 701 of the National
23 Science and Technology Policy, Organization, and Prior-
24 ities Act of 1976 (42 U.S.C. 6601 et seq.), as added by
25 section 3 of this Act, the National Science Foundation and

1 other appropriate agencies shall provide for the develop-
2 ment of high-performance computing and high-speed
3 networking technology for use in education at all levels.
4 Such applications shall include but not be limited to the
5 following:

6 (1) Pilot projects that connect primary and sec-
7 ondary schools to the Internet and the National Re-
8 search and Education Network to aid in develop-
9 ment of the software, hardware, and training mate-
10 rial needed to enable students and teachers to use
11 networks to—

12 (A) communicate with their peers around
13 the country;

14 (B) communicate with educators and stu-
15 dents in colleges and universities;

16 (C) access databases of electronic informa-
17 tion; and

18 (D) access other computing resources.

19 (2) Development of computer software, com-
20 puter systems, and networks for teacher training.

21 (3) Development of advanced educational soft-
22 ware.

23 (b) COOPERATION.—In carrying out this section, the
24 National Science Foundation shall work with the com-
25 puter and communications industry, authors and publish-

1 ers of educational materials, State education departments,
2 local school districts, and the Department of Education,
3 as appropriate.

4 (c) AUTHORIZATION OF APPROPRIATIONS.—There
5 are authorized to be appropriated to the National Science
6 Foundation for the purposes of this section, \$20,000,000
7 for fiscal year 1993, \$40,000,000 for fiscal year 1994, and
8 \$60,000,000 for fiscal year 1995.

9 **SEC. 605. APPLICATIONS FOR MANUFACTURING**

10 (a) ADVANCED MANUFACTURING SYSTEMS AND
11 NETWORKING PROJECTS.—In accordance with the Plan
12 developed under section 701 of the National Science and
13 Technology Policy, Organization, and Priorities Act of
14 1976 (42 U.S.C. 6601 et seq.), as added by section 3 of
15 this Act, the National Institute of Standards and Tech-
16 nology (hereafter in this section referred to as the “Insti-
17 tute”) shall, as provided under section 303 of the Steven-
18 son-Wydler Technology Innovation Act (as amended by
19 title II of this Act) shall establish an Advanced Manufac-
20 turing Program, including advanced manufacturing sys-
21 tems and networking projects. Activities under the Ad-
22 vanced Manufacturing Program shall, as appropriate, be
23 coordinated with activities of the Defense Advanced Re-
24 search Projects Agency, the National Science Foundation,
25 other Federal agencies, and the States to develop, refine,

1 test, and transfer advanced computer-integrated electroni-
2 cally-networked manufacturing technologies and associ-
3 ated applications.

4 (b) SUPPORT FROM OTHER FEDERAL DEPART-
5 MENTS AND AGENCIES.—The Director of the Institute
6 may request and accept funds, facilities, equipment, or
7 personnel from other Federal departments and agencies
8 in order to carry out responsibilities under this section.

9 **SEC. 606. APPLICATIONS FOR HEALTH CARE.**

10 (a) DEVELOPMENT OF TECHNOLOGIES BY NATIONAL
11 INSTITUTES OF HEALTH.—In accordance with the Plan
12 developed under section 701 of the National Science and
13 Technology Policy, Organization and Priorities Act of
14 1976 (42 U.S.C. 6601 et seq.), as added by section 3 of
15 this Act, the National Institutes of Health, and particu-
16 larly the National Library of Medicine, in cooperation with
17 the National Science Foundation and other appropriate
18 agencies, shall develop technologies for applications of
19 high-performance computing and high-speed networking
20 in the health care sector. Such applications shall include
21 but not be limited to the following;

22 (1) Testbed networks for linking hospitals, clin-
23 ics, doctor's offices, medical schools, medical librar-
24 ies, and universities to enable health care providers
25 and researchers to share medical data and imagery.

1 (2) Software and visualization technology for
2 visualizing the human anatomy and analyzing im-
3 agery from X-rays, CAT scans, PET scans, and
4 other diagnostic tools.

5 (3) Virtual reality technology for simulating op-
6 erations and other medical procedures.

7 (4) Collaborative technology to allow several
8 health care providers in remote locations to provide
9 real-time treatment to patients.

10 (5) Database technology to provide health care
11 providers with access to relevant medical information
12 and literature.

13 (6) Database technology for storing, accessing,
14 and transmitting patients' medical records while pro-
15 tecting the accuracy and privacy of those records.

16 (b) AUTHORIZATION OF APPROPRIATIONS.—There
17 are authorized to be appropriated to the National Library
18 of Medicine for the purposes of this section, \$20,000,000
19 for fiscal year 1993, \$40,000,000 for fiscal year 1994, and
20 \$60,000,000 for fiscal year 1995.

21 **SEC. 607. APPLICATIONS FOR LIBRARIES.**

22 (a) DIGITAL LIBRARIES.—In accordance with the
23 Plan developed under section 701 of the National Science
24 and Technology Policy, Organization and Priorities Act of
25 1976 (42 U.S.C. 6601 et seq.), as added by section 3 of

1 this Act, the National Science Foundation, the National
2 Aeronautics and Space Administration, the Defense Ad-
3 vanced Research Projects Agency, and other appropriate
4 agencies shall develop technologies for “digital libraries”
5 of electronic information. Development of digital libraries
6 shall include the following:

7 (1) Development of advanced data storage sys-
8 tems capable of storing hundreds of trillions of bits
9 of data and giving thousands of users nearly instan-
10 taneous access to that information.

11 (2) Development of high-speed, highly accurate
12 systems for converting printed text, page images,
13 graphics, and photographic images into electronic
14 form.

15 (3) Development of database software capable
16 of quickly searching, filtering, and summarizing
17 large volumes of text, imagery, data, and sound.

18 (4) Encouragement of development and adop-
19 tion of standards for electronic data.

20 (5) Development of computer technology to cat-
21 egorize and organize electronic information in a vari-
22 ety of formats.

23 (6) Training of database users and librarians in
24 the use of and development of electronic databases.

1 (7) Development of technology for simplifying
2 the utilization of networked databases distributed
3 around the Nation and around the world.

4 (8) Development of visualization technology for
5 quickly browsing large volumes of imagery.

6 (b) Development of Prototypes.—The National
7 Science Foundation, working with the supercomputer cen-
8 ters it supports, shall develop prototype digital libraries
9 of scientific data available over the Internet and the Na-
10 tional Research and Education Network.

11 (c) DEVELOPMENT OF DATABASES OF REMOTE-
12 SENSING IMAGES.—The National Aeronautics and Space
13 Administration shall develop databases of software and re-
14 mote-sensing images to be made available over computer
15 networks like the Internet.

16 (d) AUTHORIZATION OF APPROPRIATIONS.—(1)
17 There are authorized to be appropriated to the National
18 Science Foundation for the purposes of this section,
19 \$10,000,000 for fiscal year 1993, \$20,000,000 for fiscal
20 year 1994, \$30,000,000 for fiscal year 1995, \$40,000,000
21 for fiscal year 1996, and \$50,000,000 for fiscal year 1997.

22 (2) There are authorized to be appropriated to the
23 National Aeronautics and Space Administration for the
24 purposes of this section, \$10,000,000 for fiscal year 1993,

1 \$20,000,000 for fiscal year 1994, and \$30,000,000 for fis-
2 cal year 1995.

3 **SEC. 608. ACCESS TO SCIENTIFIC AND TECHNICAL INFOR-**
4 **MATION.**

5 (a) ASSOCIATE DIRECTORS.—Section 203 of the Na-
6 tional Science and Technology Policy, Organization, and
7 Priorities Act of 1976 (42 U.S.C. 6612) is amended—

8 (1) by striking “four” in the second sentence
9 and inserting in lieu thereof “five”; and

10 (2) by adding at the end the following new sen-
11 tence: “Among other duties, one Associate Director
12 shall oversee Federal efforts to disseminate scientific
13 and technical information.”.

14 (b) FUNCTIONS OF DIRECTOR.—Section 204(b) of
15 the National Science and Technology Policy, Organization,
16 and Priorities Act of 1976 (42 U.S.C. 6613 (b)) is amend-
17 ed—

18 (1) by striking “and” at the end of paragraph

19 (3);

20 (2) by striking the period at the end of para-
21 graph (4) and inserting in lieu thereof “; and”; and

22 (3) by inserting immediately after paragraph
23 (4) the following new paragraph:

24 (5) assist the President in disseminating sci-
25 entific and technical information.”.



S 4 IS——2

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