

109TH CONGRESS
1ST SESSION

H. R. 250

AN ACT

To establish an interagency committee to coordinate Federal manufacturing research and development efforts in manufacturing, strengthen existing programs to assist manufacturing innovation and education, and expand outreach programs for small and medium-sized manufacturers, and for other purposes.

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

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Manufacturing Tech-
5 nology Competitiveness Act of 2005”.

6 **SEC. 2. INTERAGENCY COMMITTEE AND ADVISORY COM-**
7 **MITTEE.**

8 (a) INTERAGENCY COMMITTEE.—

9 (1) ESTABLISHMENT.—The President shall es-
10 tablish or designate an interagency committee on
11 manufacturing research and development, which
12 shall include representatives from the Office of
13 Science and Technology Policy, the National Insti-
14 tute of Standards and Technology, the Science and
15 Technology Directorate of the Department of Home-
16 land Security, the National Science Foundation, the
17 Department of Energy, and any other agency that
18 the President may designate. The Chair of the Inter-
19 agency Committee shall be designated by the Direc-
20 tor of the Office of Science and Technology Policy.

21 (2) FUNCTIONS.—The Interagency Committee
22 shall be responsible for the planning and coordina-
23 tion of Federal efforts in manufacturing research
24 and development through—

1 (A) establishing goals and priorities for
2 manufacturing research and development, in-
3 cluding the strengthening of United States
4 manufacturing through the support and coordi-
5 nation of Federal manufacturing research, de-
6 velopment, technology transfer, standards, and
7 technical training;

8 (B) developing, within 6 months after the
9 date of enactment of this Act, and updating
10 every 3 years for delivery with the President's
11 annual budget request to Congress, a strategic
12 plan, to be transmitted to the Committee on
13 Science of the House of Representatives and
14 the Committee on Commerce, Science, and
15 Transportation of the Senate, for manufac-
16 turing research and development that includes
17 an analysis of the research, development, tech-
18 nology transfer, standards, technical training,
19 and integration needs of the manufacturing sec-
20 tor important to ensuring and maintaining
21 United States competitiveness;

22 (C) proposing an annual coordinated inter-
23 agency budget for manufacturing research and
24 development to the Office of Management and
25 Budget; and

1 (D) developing and transmitting to Con-
2 gress an annual report on the Federal programs
3 involved in manufacturing research, develop-
4 ment, technical training, standards, and inte-
5 gration, their funding levels, and their impacts
6 on United States manufacturing competitive-
7 ness, including the identification and analysis of
8 the manufacturing research and development
9 problems that require additional attention, and
10 recommendations of how Federal programs
11 should address those problems.

12 (3) RECOMMENDATIONS AND VIEWS.—In car-
13 rying out its functions under paragraph (2), the
14 Interagency Committee shall consider the rec-
15 ommendations of the Advisory Committee and the
16 views of academic, State, industry, and other entities
17 involved in manufacturing research and develop-
18 ment.

19 (b) ADVISORY COMMITTEE.—

20 (1) ESTABLISHMENT.—Not later than 6
21 months after the date of enactment of this Act, the
22 President shall establish or designate an advisory
23 committee to provide advice and information to the
24 Interagency Committee.

1 (2) RECOMMENDATIONS.—The Advisory Com-
2 mittee shall assist the Interagency Committee by
3 providing it with recommendations on—

4 (A) the goals and priorities for manufac-
5 turing research and development;

6 (B) the strategic plan, including proposals
7 on how to strengthen research and development
8 to help manufacturing; and

9 (C) other issues it considers appropriate.

10 (3) REPORT.—The Advisory Committee shall
11 provide an annual report to the Interagency Com-
12 mittee and the Congress that shall assess—

13 (A) the progress made in implementing the
14 strategic plan and challenges to this progress;

15 (B) the effectiveness of activities under the
16 strategic plan in improving United States man-
17 ufacturing competitiveness;

18 (C) the need to revise the goals and prior-
19 ities established by the Interagency Committee;
20 and

21 (D) new and emerging problems and op-
22 portunities affecting the manufacturing re-
23 search community, research infrastructure, and
24 the measurement and statistical analysis of

1 manufacturing that may need to be considered
2 by the Interagency Committee.

3 (4) FEDERAL ADVISORY COMMITTEE ACT AP-
4 PPLICATION.—Section 14 of the Federal Advisory
5 Committee Act shall not apply to the Advisory Com-
6 mittee.

7 **SEC. 3. COLLABORATIVE MANUFACTURING RESEARCH**
8 **PILOT GRANTS.**

9 The National Institute of Standards and Technology
10 Act is amended—

11 (1) by redesignating the first section 32 (15
12 U.S.C. 271 note) as section 34 and moving it to the
13 end of the Act; and

14 (2) by inserting before the section moved by
15 paragraph (1) the following new section:

16 **“SEC. 33. COLLABORATIVE MANUFACTURING RESEARCH**
17 **PILOT GRANTS.**

18 “(a) AUTHORITY.—

19 “(1) ESTABLISHMENT.—The Director shall es-
20 tablish a pilot program of awards to partnerships
21 among participants described in paragraph (2) for
22 the purposes described in paragraph (3). Awards
23 shall be made on a peer-reviewed, competitive basis.

24 “(2) PARTICIPANTS.—Such partnerships shall
25 include at least—

1 “(A) 1 manufacturing industry partner;
2 and

3 “(B) 1 nonindustry partner.

4 “(3) PURPOSE.—The purpose of the program
5 under this section is to foster cost-shared collabora-
6 tions among firms, educational institutions, research
7 institutions, State agencies, and nonprofit organiza-
8 tions to encourage the development of innovative,
9 multidisciplinary manufacturing technologies. Part-
10 nerships receiving awards under this section shall
11 conduct applied research to develop new manufac-
12 turing processes, techniques, or materials that would
13 contribute to improved performance, productivity,
14 and competitiveness of United States manufacturing,
15 and build lasting alliances among collaborators.

16 “(b) PROGRAM CONTRIBUTION.—Awards under this
17 section shall provide for not more than one-third of the
18 costs of a partnership. Not more than an additional one-
19 third of such costs may be obtained directly or indirectly
20 from other Federal sources.

21 “(c) APPLICATIONS.—Applications for awards under
22 this section shall be submitted in such manner, at such
23 time, and containing such information as the Director
24 shall require. Such applications shall describe at a min-
25 imum—

1 “(1) how each partner will participate in devel-
2 oping and carrying out the research agenda of the
3 partnership;

4 “(2) the research that the grant would fund;
5 and

6 “(3) how the research to be funded with the
7 award would contribute to improved performance,
8 productivity, and competitiveness of the United
9 States manufacturing industry.

10 “(d) SELECTION CRITERIA.—In selecting applica-
11 tions for awards under this section, the Director shall con-
12 sider at a minimum—

13 “(1) the degree to which projects will have a
14 broad impact on manufacturing;

15 “(2) the novelty and scientific and technical
16 merit of the proposed projects; and

17 “(3) the demonstrated capabilities of the appli-
18 cants to successfully carry out the proposed re-
19 search.

20 “(e) DISTRIBUTION.—In selecting applications under
21 this section the Director shall ensure, to the extent prac-
22 ticable, a distribution of overall awards among a variety
23 of manufacturing industry sectors and a range of firm
24 sizes.

1 “(f) DURATION.—In carrying out this section, the Di-
2 rector shall run a single pilot competition to solicit and
3 make awards. Each award shall be for a 3-year period.”.

4 **SEC. 4. MANUFACTURING FELLOWSHIP PROGRAM.**

5 Section 18 of the National Institute of Standards and
6 Technology Act (15 U.S.C. 278g–1) is amended—

7 (1) by inserting “(a) IN GENERAL.—” before
8 “The Director is authorized”; and

9 (2) by adding at the end the following new sub-
10 section:

11 “(b) MANUFACTURING FELLOWSHIP PROGRAM.—

12 “(1) ESTABLISHMENT.—To promote the devel-
13 opment of a robust research community working at
14 the leading edge of manufacturing sciences, the Di-
15 rector shall establish a program to award—

16 “(A) postdoctoral research fellowships at
17 the Institute for research activities related to
18 manufacturing sciences; and

19 “(B) senior research fellowships to estab-
20 lished researchers in industry or at institutions
21 of higher education who wish to pursue studies
22 related to the manufacturing sciences at the In-
23 stitute.

24 “(2) APPLICATIONS.—To be eligible for an
25 award under this subsection, an individual shall sub-

1 mit an application to the Director at such time, in
2 such manner, and containing such information as
3 the Director may require.

4 “(3) STIPEND LEVELS.—Under this section, the
5 Director shall provide stipends for postdoctoral re-
6 search fellowships at a level consistent with the Na-
7 tional Institute of Standards and Technology
8 Postdoctoral Research Fellowship Program, and sen-
9 ior research fellowships at levels consistent with sup-
10 port for a faculty member in a sabbatical position.”.

11 **SEC. 5. MANUFACTURING EXTENSION.**

12 (a) MANUFACTURING CENTER EVALUATION.—Sec-
13 tion 25(c)(5) of the National Institute of Standards and
14 Technology Act (15 U.S.C. 278k(c)(5)) is amended by in-
15 serting “A Center that has not received a positive evalua-
16 tion by the evaluation panel shall be notified by the panel
17 of the deficiencies in its performance and may be placed
18 on probation for one year, after which time the panel may
19 reevaluate the Center. If the Center has not addressed the
20 deficiencies identified by the panel, or shown a significant
21 improvement in its performance, the Director may conduct
22 a new competition to select an operator for the Center or
23 may close the Center.” after “sixth year at declining lev-
24 els.”.

1 (b) FEDERAL SHARE.—Strike section 25(d) of the
2 National Institute of Standards and Technology Act (15
3 U.S.C. 278k(d)) and insert the following:

4 “(d) ACCEPTANCE OF FUNDS.—In addition to such
5 sums as may be appropriated to the Secretary and Direc-
6 tor to operate the Centers program, the Secretary and Di-
7 rector also may accept funds from other Federal depart-
8 ments and agencies and under section 2(c)(7) from the
9 private sector for the purpose of strengthening United
10 States manufacturing. Such funds, if allocated to a Center
11 or Centers, shall not be considered in the calculation of
12 the Federal share of capital and annual operating and
13 maintenance costs under subsection (c).”.

14 (c) MANUFACTURING EXTENSION CENTER COMPETI-
15 TIVE GRANT PROGRAM.—Section 25 of the National Insti-
16 tute of Standards and Technology Act (15 U.S.C. 278k)
17 is amended by adding at the end the following new sub-
18 sections:

19 “(e) COMPETITIVE GRANT PROGRAM.—

20 “(1) ESTABLISHMENT.—The Director shall es-
21 tablish, within the Manufacturing Extension Part-
22 nership program under this section and section 26
23 of this Act, a program of competitive awards among
24 participants described in paragraph (2) for the pur-
25 poses described in paragraph (3).

1 “(2) PARTICIPANTS.—Participants receiving
2 awards under this subsection shall be the Centers, or
3 a consortium of such Centers.

4 “(3) PURPOSE.—The purpose of the program
5 under this subsection is to develop projects to solve
6 new or emerging manufacturing problems as deter-
7 mined by the Director, in consultation with the Di-
8 rector of the Manufacturing Extension Partnership
9 program, the Manufacturing Extension Partnership
10 National Advisory Board, and small and medium-
11 sized manufacturers. One or more themes for the
12 competition may be identified, which may vary from
13 year to year, depending on the needs of manufactur-
14 ers and the success of previous competitions. These
15 themes shall be related to projects associated with
16 manufacturing extension activities, including supply
17 chain integration and quality management, or extend
18 beyond these traditional areas.

19 “(4) APPLICATIONS.—Applications for awards
20 under this subsection shall be submitted in such
21 manner, at such time, and containing such informa-
22 tion as the Director shall require, in consultation
23 with the Manufacturing Extension Partnership Na-
24 tional Advisory Board.

1 “(5) SELECTION.—Awards under this sub-
2 section shall be peer reviewed and competitively
3 awarded. The Director shall select proposals to re-
4 ceive awards—

5 “(A) that utilize innovative or collaborative
6 approaches to solving the problem described in
7 the competition;

8 “(B) that will improve the competitiveness
9 of industries in the region in which the Center
10 or Centers are located; and

11 “(C) that will contribute to the long-term
12 economic stability of that region.

13 “(6) PROGRAM CONTRIBUTION.—Recipients of
14 awards under this subsection shall not be required
15 to provide a matching contribution.

16 “(f) AUDITS.—A center that receives assistance
17 under this section shall submit annual audits to the Sec-
18 retary in accordance with Office of Management and
19 Budget Circular A–133 and shall make such audits avail-
20 able to the public on request.”.

21 (d) PROGRAMMATIC AND OPERATIONAL PLAN.—Not
22 later than 120 days after the date of enactment of this
23 Act, the Director of the National Institute of Standards
24 and Technology shall transmit to the Committee on
25 Science of the House of Representatives and the Com-

1 mittee on Commerce, Science, and Transportation of the
2 Senate a 3-year programmatic and operational plan for
3 the Manufacturing Extension Partnership program under
4 sections 25 and 26 of the National Institute of Standards
5 and Technology Act (15 U.S.C. 278k and 278l). The plan
6 shall include comments on the plan from the Manufac-
7 turing Extension Partnership State partners and the Man-
8 ufacturing Extension Partnership National Advisory
9 Board.

10 **SEC. 6. SCIENTIFIC AND TECHNICAL RESEARCH AND SERV-**
11 **ICES.**

12 (a) LABORATORY ACTIVITIES.—There are authorized
13 to be appropriated to the Secretary of Commerce for the
14 scientific and technical research and services laboratory
15 activities of the National Institute of Standards and Tech-
16 nology—

17 (1) \$426,267,000 for fiscal year 2006, of
18 which—

19 (A) \$50,833,000 shall be for Electronics
20 and Electrical Engineering;

21 (B) \$28,023,000 shall be for Manufac-
22 turing Engineering;

23 (C) \$52,433,000 shall be for Chemical
24 Science and Technology;

25 (D) \$46,706,000 shall be for Physics;

1 (E) \$33,500,000 shall be for Material
2 Science and Engineering;

3 (F) \$24,321,000 shall be for Building and
4 Fire Research;

5 (G) \$68,423,000 shall be for Computer
6 Science and Applied Mathematics;

7 (H) \$20,134,000 shall be for Technical As-
8 sistance;

9 (I) \$48,326,000 shall be for Research Sup-
10 port Activities;

11 (J) \$29,369,000 shall be for the National
12 Institute of Standards and Technology Center
13 for Neutron Research; and

14 (K) \$18,543,000 shall be for the National
15 Nanomanufacturing and Nanometrology Facil-
16 ity;

17 (2) \$447,580,000 for fiscal year 2007; and

18 (3) \$456,979,000 for fiscal year 2008.

19 (b) MALCOLM BALDRIGE NATIONAL QUALITY
20 AWARD PROGRAM.—There are authorized to be appro-
21 priated to the Secretary of Commerce for the Malcolm
22 Baldrige National Quality Award program under section
23 17 of the Stevenson-Wydler Technology Innovation Act of
24 1980 (15 U.S.C. 3711a)—

25 (1) \$5,654,000 for fiscal year 2006;

1 (2) \$5,795,000 for fiscal year 2007; and

2 (3) \$5,939,000 for fiscal year 2008.

3 (c) CONSTRUCTION AND MAINTENANCE.—There are
4 authorized to be appropriated to the Secretary of Com-
5 merce for construction and maintenance of facilities of the
6 National Institute of Standards and Technology—

7 (1) \$58,898,000 for fiscal year 2006;

8 (2) \$61,843,000 for fiscal year 2007; and

9 (3) \$63,389,000 for fiscal year 2008.

10 (d) ADVANCED TECHNOLOGY PROGRAM ELIMI-
11 NATION REPORT.—Not later than 3 months after the date
12 of enactment of this Act, the Secretary shall provide to
13 the Congress a report detailing the impacts of the possible
14 elimination of the Advanced Technology Program on the
15 laboratory programs at the National Institute of Stand-
16 ards Technology.

17 (e) LOSS OF FUNDING.—At the time of the Presi-
18 dent’s budget request for fiscal year 2007, the Secretary
19 shall provide the Congress a report on how the Depart-
20 ment of Commerce plans to absorb the loss of Advanced
21 Technology Program funds to the laboratory programs at
22 the National Institute of Standards and Technology, or
23 otherwise mitigate the effects of this loss on its programs
24 and personnel.

1 **SEC. 7. STANDARDS EDUCATION PROGRAM.**

2 (a) PROGRAM AUTHORIZED.—(1) As part of the
3 Teacher Science and Technology Enhancement Institute
4 Program, the Director of the National Institute of Stand-
5 ards and Technology shall carry out a Standards Edu-
6 cation program to award grants to institutions of higher
7 education to support efforts by such institutions to develop
8 curricula on the role of standards in the fields of engineer-
9 ing, business, science, and economics. The curricula
10 should address topics such as—

- 11 (A) development of technical standards;
- 12 (B) demonstrating conformity to standards;
- 13 (C) intellectual property and antitrust issues;
- 14 (D) standardization as a key element of busi-
15 ness strategy;
- 16 (E) survey of organizations that develop stand-
17 ards;
- 18 (F) the standards life cycle;
- 19 (G) case studies in effective standardization;
- 20 (H) managing standardization activities; and
- 21 (I) managing organizations that develop stand-
22 ards.

23 (2) Grants shall be awarded under this section on a
24 competitive, merit-reviewed basis and shall require cost-
25 sharing from non-Federal sources.

1 (b) SELECTION PROCESS.—(1) An institution of
2 higher education seeking funding under this section shall
3 submit an application to the Director at such time, in such
4 manner, and containing such information as the Director
5 may require. The application shall include at a min-
6 imum—

7 (A) a description of the content and schedule
8 for adoption of the proposed curricula in the courses
9 of study offered by the applicant; and

10 (B) a description of the source and amount of
11 cost-sharing to be provided.

12 (2) In evaluating the applications submitted under
13 paragraph (1) the Director shall consider, at a min-
14 imum—

15 (A) the level of commitment demonstrated by
16 the applicant in carrying out and sustaining lasting
17 curricula changes in accordance with subsection
18 (a)(1); and

19 (B) the amount of cost-sharing provided.

20 (c) AUTHORIZATION OF APPROPRIATIONS.—There
21 are authorized to be appropriated to the Secretary of Com-
22 merce for the Teacher Science and Technology Enhance-
23 ment Institute program of the National Institute of Stand-
24 ards and Technology—

25 (1) \$773,000 for fiscal year 2006;

1 (2) \$796,000 for fiscal year 2007; and

2 (3) \$820,000 for fiscal year 2008.

3 **SEC. 8. AUTHORIZATION OF APPROPRIATIONS.**

4 (a) MANUFACTURING EXTENSION PARTNERSHIP
5 PROGRAM.—There are authorized to be appropriated to
6 the Secretary of Commerce, or other appropriate Federal
7 agencies, for the Manufacturing Extension Partnership
8 program under sections 25 and 26 of the National Insti-
9 tute of Standards and Technology Act (15 U.S.C. 278k
10 and 278l)—

11 (1) \$110,000,000 for fiscal year 2006, of which
12 not more than \$1,000,000 shall be for the competi-
13 tive grant program under section 25(e) of such Act
14 (15 U.S.C. 278k(e));

15 (2) \$115,000,000 for fiscal year 2007, of which
16 not more than \$4,000,000 shall be for the competi-
17 tive grant program under section 25(e) of such Act
18 (15 U.S.C. 278k(e)); and

19 (3) \$120,000,000 for fiscal year 2008, of which
20 not more than \$4,100,000 shall be for the competi-
21 tive grant program under section 25(e) of such Act
22 (15 U.S.C. 278k(e)).

23 (b) COLLABORATIVE MANUFACTURING RESEARCH
24 PILOT GRANTS PROGRAM.—There are authorized to be
25 appropriated to the Secretary of Commerce for the Col-

1 laborative Manufacturing Research Pilot Grants program
2 under section 33 of the National Institute of Standards
3 and Technology Act—

4 (1) \$10,000,000 for fiscal year 2006;

5 (2) \$10,000,000 for fiscal year 2007; and

6 (3) \$10,000,000 for fiscal year 2008.

7 (c) FELLOWSHIPS.—There are authorized to be ap-
8 propriated to the Secretary of Commerce for Manufac-
9 turing Fellowships at the National Institute of Standards
10 and Technology under section 18(b) of the National Insti-
11 tute of Standards and Technology Act, as added by section
12 4 of this Act—

13 (1) \$1,500,000 for fiscal year 2006;

14 (2) \$1,750,000 for fiscal year 2007; and

15 (3) \$2,000,000 for fiscal year 2008.

16 **SEC. 9. TECHNICAL WORKFORCE EDUCATION AND DEVEL-**
17 **OPMENT.**

18 (a) AUTHORIZATION OF APPROPRIATIONS.—There
19 are authorized to be appropriated to the Director of the
20 National Science Foundation, from sums otherwise au-
21 thorized to be appropriated, for the Advanced Techno-
22 logical Education Program established under section 3 of
23 the Scientific and Advanced-Technology Act of 1992 (42
24 U.S.C. 1862i)—

1 (1) \$55,000,000 for fiscal year 2006,
2 \$5,000,000 of which may be used to support the
3 education and preparation of manufacturing techni-
4 cians for certification;

5 (2) \$57,750,000 for fiscal year 2007,
6 \$5,000,000 of which may be used to support the
7 education and preparation of manufacturing techni-
8 cians for certification; and

9 (3) \$60,600,000 for fiscal year 2008,
10 \$5,000,000 of which may be used to support the
11 education and preparation of manufacturing techni-
12 cians for certification.

13 Funds shall be made available under this subsection, to
14 the maximum extent practicable, to diverse institutions,
15 including Historically Black Colleges and Universities and
16 other minority serving institutions.

17 (b) AMENDMENT.—Section 3 of the Scientific and
18 Advanced-Technology Act of 1992 (42 U.S.C. 1862i) is
19 amended—

20 (1) by inserting “, including manufacturing”
21 after “advanced-technology fields” each place it ap-
22 pears other than in subsection (c)(2); and

23 (2) by inserting “, including manufacturing,”
24 after “advanced-technology fields” in subsection
25 (c)(2).

1 **SEC. 10. KATRINA ASSISTANCE PROGRAM.**

2 (a) PROGRAM ESTABLISHMENT.— Not later than 30
3 days after the date of enactment of this Act, the Director
4 of the National Institute of Standards and Technology
5 shall establish within the Manufacturing Extension Part-
6 nership program established under sections 25 and 26 of
7 the National Institute of Standards and Technology Act
8 (15 U.S.C. 278k and 278l) a Katrina Assistance Program,
9 to provide assistance to impacted small and medium-sized
10 manufacturers in the areas affected by Hurricane Katrina.

11 (b) PURPOSES.—The Katrina Assistance Program
12 shall—

13 (1) establish triage teams, consisting of per-
14 sonnel from within the national network of Manufac-
15 turing Extension Partnership Centers established
16 under section 25 of the National Institute of Stand-
17 ards and Technology Act (15 U.S.C. 278k) and local
18 experts, the purpose of which shall be to assist im-
19 pacted manufacturers;

20 (2) develop virtual assistance centers, consisting
21 of databases incorporating the results and rec-
22 ommendations of the triage team assessments;

23 (3) assess the potential disruption on national
24 manufacturing supply chains as a result of Hurri-
25 cane Katrina, and develop recommendations of how
26 to minimize such disruption; and

1 an examination of physical structures damaged due to ex-
2 cessive wind, storm surge, and flooding, including—

3 (1) key physical infrastructures such as ports,
4 utilities, lifelines associated with infrastructure fa-
5 cilities, and transportation systems; and

6 (2) engineered and nonengineered buildings.

7 (b) PURPOSE.—The purpose of the study shall be
8 to—

9 (1) develop new knowledge concerning practices
10 related to building standards and codes; and

11 (2) review the adequacy of current building
12 codes and standards for excessive wind, storm surge,
13 and flooding.

14 (c) MEETINGS AND CONFERENCES.—The Director of
15 the National Institute of Standards and Technology may
16 convene public meetings and conferences to inform the
17 public, government authorities, and relevant professional
18 associations regarding findings and recommendations of
19 the study.

20 (d) AUTHORIZATION OF APPROPRIATIONS.—There
21 are authorized to be appropriated to the Director of the

- 1 National Institute of Standards and Technology
- 2 \$3,000,000 for carrying out this section.

Passed the House of Representatives September 21,
2005.

Attest:

Clerk.

109TH CONGRESS
1ST SESSION

H. R. 250

AN ACT

To establish an interagency committee to coordinate Federal manufacturing research and development efforts in manufacturing, strengthen existing programs to assist manufacturing innovation and education, and expand outreach programs for small and medium-sized manufacturers, and for other purposes.