

The Federal Networking and Information Technology Research and Development Program: Background, Funding, and Activities

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Summary

In the early 1990s, Congress recognized that several federal agencies had ongoing high-performance computing programs, but no central coordinating body existed to ensure long-term coordination and planning. To provide such a framework, Congress passed the High-Performance Computing and Communications Program Act of 1991 (P.L. 102-194) to enhance the effectiveness of the various programs. In conjunction with the passage of the act, the White House Office of Science and Technology Policy (OSTP) released *Grand Challenges: High-Performance Computing and Communications*. That document outlined a research and development (R&D) strategy for high-performance computing and a framework for a multi-agency program, the High-Performance Computing and Communications (HPCC) Program. The HPCC Program has evolved over time and is now called the Networking and Information Technology Research and Development (NITRD) Program to better reflect its expanded mission.

Current concerns are the role of the federal government in supporting information technology (IT) R&D and the level of funding to allot to it. Proponents of federal support of IT R&D assert that it has produced positive outcomes for the country and played a crucial role in supporting long-term research into fundamental aspects of computing. Such fundamentals provide broad practical benefits but generally take years to realize. Additionally, the unanticipated results of research are often as important as the anticipated results. Another aspect of government-funded IT research is that it often leads to open standards, something that many perceive as beneficial, encouraging deployment and further investment. Industry, on the other hand, is more inclined to invest in proprietary products and will diverge from a common standard when there is a potential competitive or financial advantage to do so. Proponents of government support believe that the outcomes achieved through the various funding programs create a synergistic environment in which both fundamental and application-driven research are conducted, benefitting government, industry, academia, and the public. Supporters also believe that such outcomes justify government's role in funding IT R&D as well as the growing budget for the NITRD Program. Critics assert that the government, through its funding mechanisms, may be picking "winners and losers" in technological development, a role more properly residing with the private sector. For example, the size of the NITRD Program may encourage industry to follow the government's lead on research directions rather than selecting those directions itself.

The President's FY2016 budget request for the NITRD Program is $4.1 billion, and the FY2015 estimate totaled $4.0 billion.

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The Federal NITRD Program

The federal government has long played a key role in the country's information technology (IT) research and development (R&D) activities. The government's support of IT R&D began because it had an important interest in creating computers and software that would be capable of addressing the problems and issues the government needed to solve and study. One of the first such problems was calculating the trajectories of artillery and bombs; more recently, such problems include simulations of nuclear testing, cryptanalysis, and weather modeling. That interest continues today. These complex issues have led to calls for coordination to ensure that the government's evolving needs (e.g., homeland security) will continue to be met in the most effective manner possible.

Structure

Established by the High-Performance Computing Act of 1991 (P.L. 102-194), the Networking and Information Technology Research and Development (NITRD) Program is the primary mechanism by which the federal government coordinates its unclassified networking and information technology (NIT) R&D investments. Eighteen federal agencies, including all of the large science and technology agencies, are formal members of the NITRD Program,[1] with many other federal entities participating in NITRD activities. The program aims to ensure that the nation effectively leverages its strengths, avoids duplication, and increases interoperability in such critical areas as supercomputing, high-speed networking, cybersecurity, software engineering, and information management. **Figure 1** illustrates the organizational structure of the NITRD Program.

The National Coordinating Office (NCO) coordinates the activities of the NITRD Program. The NCO was established in September 1992 and was initially called the National Coordination Office for High Performance Computing and Communications (NCO/HPCC). Its name has changed several times over the years; since July 2005, it has been called the National Coordination Office for Networking and Information Technology Research and Development (NCO/NITRD). The NCO/NITRD supports the planning, coordination, budget, and assessment activities of the program. The NCO's role in the NITRD enterprise is recognized in the National Science and Technology Council (NSTC) charters, authorizing NITRD Program structures as well as in legislation and congressional hearings. The director of the White House Office of Science Technology and Policy (OSTP) appoints a director for the NCO. The director of the NCO reports to the director of the White House Office on Science and Technology Policy (OSTP). The NCO supports the National Science and Technology Council's Subcommittee on NITRD (also called the NITRD Subcommittee).[2] The NITRD Subcommittee provides policy, program, and

[1] Department of Commerce (DOC): National Institute of Standards and Technology (NIST), National Oceanic and Atmospheric Administration (NOAA); Department of Defense (DOD): Defense Advanced Research Projects Agency (DARPA), National Security Agency (NSA), Office of the Secretary of Defense (OSD) and Service Research Organizations (Air Force Office of Scientific Research (AFOSR), Air Force Research Laboratory (AFRL), Army Research Laboratory (ARL), Office of Naval Research (ONR); Department of Energy (DOE): National Nuclear Security Administration (DOE/NNSA), Office of Science (DOE/SC); Department of Homeland Security (DHS); Department of Health and Human Services (HHS): Agency for Healthcare Research and Quality (AHRQ), National Institutes of Health (NIH), Office of the National Coordinator for Health Information Technology (ONC); Environmental Protection Agency (EPA); National Aeronautics and Space Administration (NASA); National Archives and Records Administration (NARA); National Science Foundation (NSF).

[2] The NITRD Subcommittee was previously called the Interagency Working Group for IT R&D (IWG/IT R&D).

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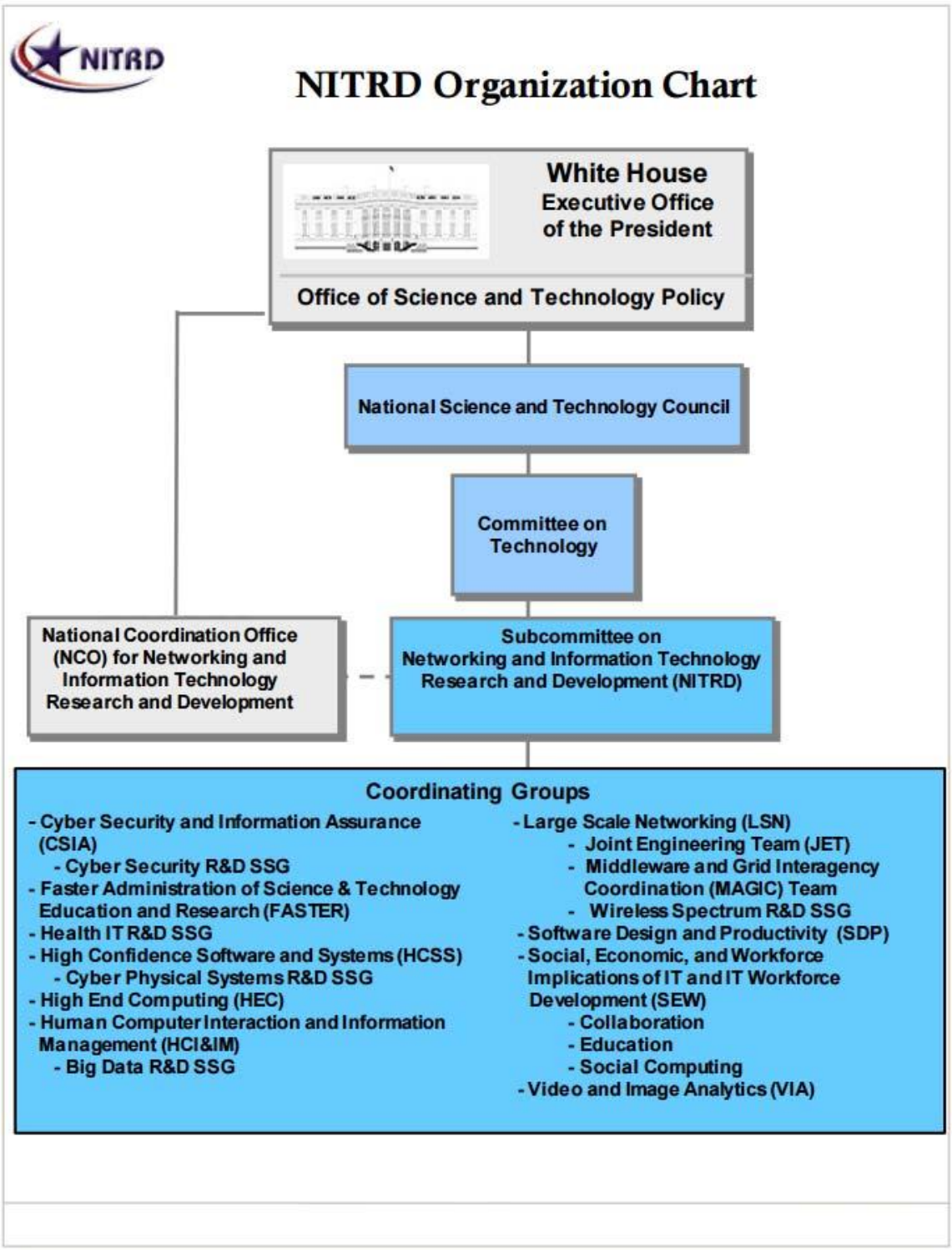
budget planning for the NITRD Program and is composed of representatives from each of the participating agencies, OSTP, Office of Management and Budget (OMB), and the NCO.

Figure 1. Management Structure of the NITRD Program



Source: NITRD Program website, http://www.nitrd.gov.

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NITRD Program activities are described under a set of eight Program Component Areas (PCAs),[3] four Senior Steering Groups (SSGs),[4] and a Community of Practice (CoP).[5] The PCAs are identified as an Interagency Working Group or a Coordinating Group and report their R&D budgets as a crosscut of the NITRD agencies. In addition to the PCAs, NITRD has established several SSGs. The SSGs allow a more flexible model for NITRD collaboration and are formed to focus on emerging issues as required by a mandate from OSTP. SSGs do not report an R&D budget under NITRD. The CoP's goal is to enhance collaboration and accelerate agencies' adoption of advanced IT capabilities developed by government-sponsored IT research. The NITRD Subcommittee convenes three times a year, and the working groups meet approximately 12 times annually and provide input to the NITRD Supplement to the President's Budget.

Budget, Funding, and Spending

The NITRD budget is an aggregation of the IT R&D components of the individual budgets of NITRD participating agencies and is reported in the annual release of the *Networking and Information Technology Research and Development Program Supplement to the President's Budget*. The NITRD budget is not a single, centralized source of funds that is allocated to individual agencies. In fact, the agency IT R&D budgets are developed internally as part of each agency's overall budget development process. These budgets are subjected to review, revision, and approval by the OMB and become part of the President's annual budget submission to Congress. The NITRD budget is then calculated by aggregating the IT R&D components of the appropriations provided by Congress to each federal agency.

An interactive history of NITRD Program funding, dating back to 1991, is available online at http://www.nitrd.gov/open/index.aspx.

FY2016 Budget

The President's FY2016 budget request for the NITRD Program is $4.1 billion, and the FY2015 estimate totaled $4.0 billion.

Federal Technology Funding: Background and Context

In the early 1990s, Congress recognized that several federal agencies had ongoing high-performance computing programs,[6] but no central coordinating body existed to ensure long-term

[3] Cyber Security and Information Assurance (CSIA); High-Confidence Software and Systems (HCSS); High-End Computing Infrastructure and Applications (HEC I&A); High-End Computing Research and Development (HEC R&D); Human-Computer Interaction and Information Management (HCI&IM); Large-Scale Networking (LSN); Social, Economic, and Workforce Implications of IT and IT Workforce Development (SEW); Software Design and Productivity (SDP).

[4] Big Data SSG; Cyber Security and Information Assurance R&D SSG; Health Information Technology R&D SSG; Wireless Spectrum R&D SSG.

[5] Faster Administration of Science and Technology Education and Research (FASTER) Community of Practice (CoP).

[6] "High-performance" computing is a term that encompasses both "supercomputing" and "grid computing." In general, high-performance computers are defined as stand-alone or networked computers that can perform "very complex (continued...)

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coordination and planning. To provide such a framework, Congress passed the High-Performance Computing Program Act of 1991 to improve the interagency coordination, cooperation, and planning of agencies with high-performance computing programs.

In conjunction with the passage of the act, OSTP released *Grand Challenges: High-Performance Computing and Communications*. That document outlined an R&D strategy for high-performance computing and communications and a framework for a multi-agency program, the HPCC Program.

The NITRD Program is part of the larger federal effort to promote fundamental and applied IT R&D. The government sponsors such research through a number of channels, including:

- Federally funded research and development laboratories, such as Lawrence Livermore National Laboratory;
- Single-agency programs;
- Multi-agency programs, including the NITRD Program, but also programs focusing on nanotechnology R&D and combating terrorism;
- Funding grants to academic institutions; and
- Funding grants to industry.

In general, supporters of federal funding of IT R&D contend that it has produced positive results. In 2003, the Computer Science and Telecommunications Board (CSTB) of the National Research Council released a "synthesis report" based on eight previously released reports that examined "how innovation occurs in IT, what the most promising research directions are, and what impacts such innovation might have on society."[7] The CSTB's observation was that the unanticipated results of research are often as important as the anticipated results. For example, electronic mail and instant messaging were byproducts of (government-funded) research in the 1960s that was aimed at making it possible to share expensive computing resources among multiple simultaneous interactive users. Additionally, the report noted that federally funded programs have played a crucial role in supporting long-term research into fundamental aspects of computing. Such "fundamentals" provide broad practical benefits but generally take years to realize. Furthermore, supporters state that the nature and underlying importance of fundamental research makes it less likely that industry would invest in and conduct more fundamental research on its own. As noted by the CSTB, "companies have little incentive to invest significantly in activities whose benefits will spread quickly to their rivals."[8] Further, in the board's opinion:

> Government sponsorship of research, especially in universities, helps develop the IT talent used by industry, universities, and other parts of the economy. When companies create

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computations very quickly." Supercomputing involves a single, stand-alone computer located in a single location. Grid computing involves a group of computers, in either the same location or spread over a number of locations, that are networked together (e.g., via the Internet or a local network). U.S. Congress, House Committee on Science, *Supercomputing: Is the United States on the Right Path*, hearing, 108th Cong.,1st sess., July 16, 2003, http://commdocs.house.gov/committees/science/hsy88231.000/hsy88231_0f.htm, 2003, pp. 5-6.

[7] National Research Council, *Innovation in Information Technology*, 2003, p. 1. This report discusses all federal funding for R&D, not only the NITRD Program.

[8] Ibid., p. 4.

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> products using the ideas and workforce that result from Federally-sponsored research, they repay the nation in jobs, tax revenues, productivity increases, and world leadership.[9]

Another aspect of government-funded IT R&D is that it often leads to open standards, something that many perceive as beneficial, encouraging deployment and further investment. Industry, on the other hand, is more likely to invest in proprietary products and will typically diverge from a common standard if it sees a potential competitive or financial advantage; this happened, for example, with standards for instant messaging.[10]

Finally, proponents of government R&D support believe that the outcomes achieved through the various funding programs create a synergistic environment in which both fundamental and application-driven research are conducted, benefitting government, industry, academia, and the public. Supporters also believe that such outcomes justify government's role in funding IT R&D as well as the growing budget for the NITRD Program.

Critics have asserted that the government, through its funding mechanisms, may set itself up to pick "winners and losers" in technological development, a role more properly residing with the private sector.[11] For example, the size of the NITRD Program could encourage industry to follow the government's lead on research directions rather than selecting those directions itself.

Overall, the CSTB stated that government funding appears to have allowed research on a larger scale and with greater diversity, vision, and flexibility than would have been possible without government involvement.[12]

Legislative Activity in the 114th Congress

There has been no legislation nor hearings related to the NITRD Program in the 114th Congress.

Legislation in the 113th Congress

Four bills were introduced that would affect the NITRD Program, and one hearing was held that addressed the activities of the NITRD Program member agencies.

H.R. 756—Cybersecurity Enhancement Act of 2013

H.R. 756 was introduced by Representative Michael McCaul on February 15, 2013. The bill was reported (amended) on April 11, 2013 (H.Rept. 113-33). It was passed by the House and referred to the Senate Committee on Commerce, Science, and Transportation on April 17, 2013.

This bill would have:

[9] Ibid., p. 4.

[10] Ibid., p. 18.

[11] Steve Slivinski and Solveig Singleton, "Encouraging Research: Taking Politics Out of R&D," Cato Institute, September 13, 1999, http://www.cato.org/pubs/wtpapers/990913catord.html.

[12] National Research Council, *Innovation in Information Technology*, p. 22.

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- Required NITRD member agencies to provide to Congress a cybersecurity strategic R&D plan and triennial updates and develop and annually update an implementation roadmap for such plan;
- Expanded permitted National Science Foundation (NSF) grants for basic research on innovative approaches to the structure of computer and network hardware and software that are aimed at enhancing computer security to include research into identity management, crimes against children, and organized crime;
- Required applications for the establishment of Computer and Network Security Research Centers to include a description of how such centers will partner with government laboratories, for-profit entities, other institutions of higher education, or nonprofit research institutions;
- Repealed the Cyber Security Faculty Development Traineeship Program;
- Required the NSF director to continue carrying out a Scholarship for Service program under the Cyber Security Research and Development Act;
- Directed the President to transmit a report to Congress addressing the cybersecurity workforce needs of the federal government;
- Required the OSTP director to convene a cybersecurity university-industry task force to explore mechanisms for carrying out collaborative R&D activities;
- Revised provisions concerning the development and dissemination by the National Institute of Standards and Technology (NIST) of security risk checklists associated with computer systems that are, or are likely to become, widely used within the federal government;
- Required conducting intramural security research activities under NIST's computing standards program;
- Required the NIST director to (1) ensure coordination of U.S. government representation in the international development of technical standards related to cybersecurity; (2) maintain a cybersecurity awareness and education program through the Hollings Manufacturing Extension Partnership program; and (3) continue a program to support development of technical standards, metrology, testbeds, and conformance criteria with regard to identity management research and development.

H.R. 967—Advancing America's Networking and Information Technology Research and Development Act of 2013[13]

H.R. 967 was introduced by Representative Cynthia Lummis on March 5, 2013. The bill was reported (H.Rept. 113-34)[14] by the House Committee on Science, Space, and Technology on April 11, 2013, and referred to the Senate Committee on Commerce, Science, and Transportation on April 17, 2013. This bill would have:

[13] H.R. 1468, the SECURE IT Act of 2013, is a related bill to H.R. 3834. Section 407 of the bill contains conforming and technical amendments to the High-Performance Computing Act of 1991. However, it does not change the functions of the program or its management structure.

[14] This document is available online at http://www.gpo.gov/fdsys/pkg/CRPT-113hrpt34/pdf/CRPT-113hrpt34.pdf.

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- Amended the High-Performance Computing Act of 1991 to rename the National High-Performance Computing Program as the NITRD Program;
- Directed the federal agencies participating in the Program to (1) periodically assess the contents and funding levels of program component areas and restructure the program when warranted; and (2) ensure that the program includes large-scale, long-term, interdisciplinary R&D activities;
- Required the participating federal agencies to develop, and update every three years, a five-year strategic plan to guide activities provided for under the program;
- Required the director of the OSTP to encourage and monitor the efforts of participating agencies to allocate the resources and management attention necessary to ensure that the strategic plan is executed effectively and that program objectives are met;
- Required the program, in addition to its current requirements, to provide for (1) increased understanding of the scientific principles of cyber-physical systems and improve the methods available for the design, development, and operation of such systems; and (2) research and development on human-computer interactions, visualization, and big data;
- Required continuation of an NCO and require the director of the office to (1) convene a task force to explore mechanisms for carrying out collaborative R&D activities on cyber-physical systems; and (2) examine issues around funding mechanisms and policies for the use of cloud computing services for federally funded science and engineering research through the NTSC, an interagency working group.

H.R. 1468—Strengthening and Enhancing Cybersecurity by Using Research, Education, Information, and Technology Act of 2013 (SECURE IT) Act of 2013

H.R. 1468 was introduced by Representative Marsha Blackburn on April 10, 2013. The bill was referred to the Committee on Science, Space, and Technology in addition to the Committees on Oversight and Government Reform, the Judiciary, Armed Services, Intelligence (Permanent Select), and Energy and Commerce, in each case for consideration of provisions that fell within the jurisdiction of the committee concerned, on April 10, 2013. On April 30, 2013, the bill was referred to the Committee on the Judiciary's Subcommittee on Crime, Terrorism, Homeland Security, and Investigations. On June 24, 2014, the bill was referred to the Committee on Science, Space, and Technology's Subcommittee on Research and Technology. In addition to other purposes, this bill contained NITRD-related provisions similar to those in H.R. 967.

H.R. 2495—American Super Computing Leadership Act of 2013

H.R. 2495 was introduced by Representative Randy Hultgren on June 25, 2013. The bill was reported by the House, received in the Senate, and referred to the Committee on Commerce, Science, and Transportation on September 9, 2014.

This bill would have:

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- Amended the Department of Energy (DOE) High-End Computing Revitalization Act of 2004 with respect to (1) exascale computing (computing system performance at or near 10 to the 18th power floating point operations per second); and (2) a high-end computing system with performance substantially exceeding that of systems commonly available for advanced scientific and engineering applications.
- Directed the Secretary of Energy to(1) coordinate the development of high-end computing systems across DOE; (2) partner with universities, National Laboratories, and industry to ensure the broadest possible application of the technology developed in the program to other challenges in science, engineering, medicine, and industry; and (3) include among the multiple architectures researched, at DOE discretion, any computer technologies that show promise of substantial reductions in power requirements and substantial gains in parallelism of multicore processors, concurrency, memory and storage, bandwidth, and reliability.
- Repealed authority for establishment of at least one High-End Software Development Center.
- Directed the Secretary to conduct a coordinated research program to develop exascale computing systems to advance DOE missions, requiring establishment through competitive merit review of two or more DOE National Laboratory-industry-university partnerships to conduct integrated research, development, and engineering of multiple exascale architectures.
- Required the Secretary to conduct mission-related co-design activities in developing such exascale platforms. Defines "co-design" as the joint development of application algorithms, models, and codes with computer technology architectures and operating systems to maximize effective use of high-end computing systems.
- Directed the Secretary to develop any advancements in hardware and software technology required to realize fully the potential of an exascale production system in addressing DOE target applications and solving scientific problems involving predictive modeling and simulation and large-scale data analytics and management. Requires DOE to also explore the use of exascale computing technologies to advance a broad range of science and engineering.
- Directed the Secretary to submit to Congress an integrated strategy and program management plan.
- Required the Secretary, before initiating construction or installation of an exascale-class computing facility, to transmit to Congress a separate plan detailing (1) the proposed facility's cost projections and capabilities to significantly accelerate the development of new energy technologies; (2) technical risks and challenges that must be overcome to achieve successful completion and operation of the facility; and (3) an independent assessment of the scientific and technological advances expected from such a facility relative to those expected from a comparable investment in expanded research and applications at terascale-class and petascale-class computing facilities, including an evaluation of where investments should be made in the system software and algorithms to enable these advances.

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Hearings in the 113th Congress

One hearing was held related to the NITRD Program.

Applications for Information Technology Research and Development

"Applications for Information Technology Research and Development" was held by the House Committee on Science and Technology's Subcommittee on Research and Technology, on February 14, 2013.[15] Witnesses at the hearing were Dr. Kelly Gaither, director, Visualization Lab, Texas Advanced Computing Center, University of Texas, Austin; Dr. Kathryn McKinley, principal researcher, Microsoft; and Dr. Ed Lazowska, Bill and Melinda Gates Chair in Computer Science and Engineering, University of Washington. The purpose of the hearing was to examine how to protect essential systems and networks that support fundamental sectors of the U.S. economy, such as emergency communications, power grids, air-traffic control networks, and national defense systems.

Potential Issues for Congress

Federal IT R&D is a multi-dimensional issue involving many government agencies working together towards shared, complementary, and disparate goals. Many observers believe that success in this arena requires ongoing coordination among government, academia, and industry.

Issues related to U.S. competitiveness in high-performance computing and the direction the IT R&D community has been taking have remained salient over the last five to 10 years and include:

- The United States' status as the global leader in high-performance computing research;
- The apparent ongoing bifurcation of the federal IT R&D research agenda between grid computing and supercomputing capabilities;
- The possible overreliance on commercially available hardware to satisfy U.S. research needs; and
- The potential impact of deficit cutting on IT R&D funding.

[15] The hearing main page can be found at http://science.house.gov/hearing/subcommittee-research-applications-information-technology-research-devlopment.

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Appendix. NITRD Enabling and Governing Legislation

The NITRD Program is governed by two laws. The first, the High-Performance Computing Act of 1991 (P.L. 102-194),[16] expanded federal support for high-performance computing R&D and called for increased interagency planning and coordination. The second, the Next Generation Internet Research Act of 1998 (P.L. 105-305),[17] amended the original law to expand the mission of the NITRD Program to cover Internet-related research, among other goals.

High-Performance Computing Act of 1991

The High-Performance Computing Act of 1991 (P.L. 102-194) was the original enabling legislation for what is now the NITRD Program. Among other requirements, it called for the following:

- Setting goals and priorities for federal high-performance computing research, development, and networking.
- Providing for the technical support and research and development of high-performance computing software and hardware needed to address fundamental problems in science and engineering.
- Educating undergraduate and graduate students.
- Fostering and maintaining competition and private sector investment in high-speed data networking within the telecommunications industry.
- Promoting the development of commercial data communications and telecommunications standards.
- Providing security, including protecting intellectual property rights.
- Developing accounting mechanisms allowing users to be charged for the use of copyrighted materials.

This law also requires an annual report to Congress on grants and cooperative R&D agreements and procurements involving foreign entities.[18]

Next Generation Internet Research Act of 1998

The Next Generation Internet Research Act of 1998 (P.L. 105-305) amended the High-Performance Computing Act of 1991. The act had two overarching purposes. The first was to

[16] High Performance Computing Act of 1991, P.L. 102-194, 15 U.S.C. 5501, 105 Stat. 1595, December 9, 1991. The full text of this law is available at http://www.nitrd.gov/congressional/laws/pl_102-194.html.

[17] Next Generation Internet Research Act of 1998, P.L. 105-305, 15 U.S.C. 5501, 112 Stat. 2919, October 28, 1998. The full text of this law is available at http://www.nitrd.gov/congressional/laws/pl_h_105-305.html.

[18] The first report mandated that information on the "Supercomputer Agreement" between the United States and Japan be included in this report. A separate one-time only report was required on network funding, including user fees, industry support, and federal investment.

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authorize research programs related to high-end computing and computation, human-centered systems, high confidence systems, and education, training, and human resources. The second was to provide for the development and coordination of a comprehensive and integrated U.S. research program to focus on (1) computer network infrastructure that would promote interoperability among advanced federal computer networks, (2) economic high-speed data access that does not impose a "geographic penalty," and (3) flexible and extensible networking technology.

America COMPETES Act of 2007

Section 7024 of the America COMPETES Act of 2007 (P.L. 110-69) revised the program requirements for the National High-Performance Computing Program. Among other requirements, the bill amended the original enabling legislation to:

- Require the director of the OSTP to (1) establish the goals and priorities for federal high-performance computing research, development, networking, and other activities; (2) establish PCAs that implement such goals and identify the Grand Challenges (i.e., fundamental problems in science or engineering with broad economic and scientific impact whose solutions will require the application of high-performance computing resources and, as amended by this section, multidisciplinary teams of researchers) that the program should address; and (3) develop and maintain a research, development, and deployment roadmap covering all states and regions for the provision of high-performance computing and networking systems.
- Revise requirements for annual reports by requiring that such reports (1) describe PCAs, including any changes in the definition of or activities under such areas and the reasons for such changes, and describe Grand Challenges supported under the program; (2) describe the levels of federal funding and the levels proposed for each PCA; (3) describe the levels of federal funding for each agency and department participating in the program for each such area; and (4) include an analysis of the extent to which the program incorporates the recommendations of the advisory committee on high-performance computing. Eliminates the requirement for inclusion of reports on DOE activities taken to carry out the National High-Performance Computing Program.
- Require the advisory committee on high-performance computing to conduct periodic evaluations of the funding, management, coordination, implementation, and activities of the program and to report at least once every two fiscal years to specified congressional committees. Prohibits applying provisions for the termination, renewal, and continuation of federal advisory committees under the Federal Advisory Committee Act to such advisory committee.
- Instruct the NSF to support basic research related to advanced information and communications technologies that will contribute to enhancing or facilitating the availability and affordability of advanced communications services for all people of the United States. Requires the NSF director to award multiyear grants to institutions of higher education, nonprofit research institutions affiliated with such institutions, or their consortia to establish multidisciplinary Centers for Communications Research. Increases funding for the basic research activities described in this section, including support for such centers. Requires the NSF director to transmit to Congress, as part of the President's annual budget

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submission, reports on the amounts allocated for support of research under this section.

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