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POLICY BRIEF

The Information Technology Research Initiative

FACT SHEET

- **The Information Technology (IT) research initiative proposed in the FY 2000 budget will revitalize the federal investment in computing, information, and communications research, the results of which will help expand the economy, strengthen public infrastructure and services, advance science, and improve the lives of all Americans**.

- **The IT initiative will focus on long-term, high-risk, high-payoff research that generates the innovations that fuel the information technology industry and the information technology revolution**.

- **IT industries**:
  - account for more than $500 billion of the annual U.S. economy.
  - are responsible for 1/3 of overall growth in U.S. production since 1992.
  - have created millions of new high-paying jobs.
  - enable productivity increases throughout the economy.
  - contribute to keeping inflation lower than it otherwise would be.

- **Federal investments are crucial to the pace of progress in IT and the success of U.S. firms in the global IT marketplace**. This is documented in CRA's 1997 report, *Computing Research: A National Investment for Leadership in the 21st Century*, and in the 1999 report of a **Congressionally chartered panel,** *Information Technology Research: Investing in Our Future*.

- **The IT industry cannot be expected to support the pre-competitive research that provides the wellspring of new ideas in computing and communications**. The intense pace and equally intense competitive pressures on prices and profit margins in the IT marketplace dictate that firms devote the bulk of their R&D resources to shorter-term applied research and product development. Nearly all of its available human and capital resources must be focused on bringing the next product to market if a firm is to be successful in this environment.

- **The IT Initiative is focused**. Expert panels have identified the critical research challenges that must be addressed to maintain progress in information technology into the 21st century and, in particular, to lead to:

  - software that is more reliable, easier to use, and less expensive to develop;
  - computers that can communicate in human languages;
  - programs that facilitate knowledge and insight from complex information;
  - scalable networked systems for anytime, anywhere connectivity;
  - improved performance and efficiency of high end computers;
  - expanded access to high end computational resources for scientists and engineers; and
  - better understanding of the social, ethical, and legal implications of information technology.

- **Expanding the federal investment in university-based computing and communications research will help increase the supply of highly skilled information technology professionals** and alleviate the shortage of IT workers that many companies have faced in recent years.

- **The objectives of the initiative will also ensure that proper attention is paid to improving the accessibility, reliability, and security of information infrastructure and making governmental information-based services more responsiveness to citizens' needs throughout the United States**.

Additional Details on the Information Technology Research Initiative

- **The President's Information Technology Advisory Committee (PITAC), an independent, Congressionally-chartered panel,** found that **the federal investment in information technology R&D is inadequate and too focused on near-term problems** and recommended that a strategic initiative be created to expand support for broad-based, precompetitive, long-term IT research.

- **Six federal agencies, all highly dependent on advances in information technologies to carry out their increasingly complex missions, are participating in the initiative**: the National Science Foundation, the Departments of Defense and Energy, the National Aeronautics and Space Administration, the National Institutes of Health, and the National Oceanic and Atmospheric Administration. Each agency will bring its own unique mix of capabilities and expertise to bear on an appropriate subset of the R&D objectives of the initiative.

- Proposed FY 2000 funding for the initiative would total $366 million distributed among three components: long-term information technology research that will lead to fundamental breakthroughs in computing and communications ($228 million); advanced computing for science, engineering, and the Nation ($123 million); and research on the economic and social implications of information technologies, including workforce issues ($15 million).

- The initiative builds on base funding in computing and communications research, which would grow from $1,314 million to $1,462 million in FY 2000.

- **Including funds from the new initiative, support for computing and communications research would still be less than half of what the federal government spends on the physical sciences and less than a fifth of what is spent on the life sciences**.

- **The IT initiative complements and does not duplicate the High Performance Computing and Communications program**. It is designed to address fundamental questions in many facets of computing research, the answers to which will have impact on a broader range of information technologies, not just high performance or high end computing. Whereas HPCC was about making faster computers in a specified time frame for solving scientific and mission-oriented problems, **the IT research initiative is about making computers and networks that are *better*** – easier to design and use, more stable and reliable, more secure, and amenable to more users and uses.

- Investments made through the initiative are being planned and coordinated by a high level committee under the auspices of the National Science and Technology Council. A working group, chaired by the National Science Foundation, is supporting the committee.