NATIONAL NANOTECHNOLOGY INITIATIVE
LEADING TO THE NEXT INDUSTRIAL REVOLUTION

The President's 2003 Budget requests a 17 percent increase in the government's expenditure in the National Nanotechnology Initiative (NNI), bringing the total to $679 million. This $100 million increase over last year's budget will accelerate long-term research in the manipulation of matter down to the atomic and molecular levels, increasing our understanding of fundamental building blocks for both material and microscopic devices. Research at the nanoscale promises revolutionary advances in pharmaceuticals, more efficient manufacturing, higher performance materials, faster computers and networks, and a cleaner environment.

Nine federal agencies currently request funding for NNI, though more participate in coordination. The 2003 budget proposes notable increases in funding for a number of these agencies: the National Science Foundation, the Department of Defense, the Department of Energy, the Department of Commerce, and National Institutes of Health.

	2002 ($M)	2003 ($M)	Percent Increase
National Science Foundation	199	221	11%
Defense	180	201	12%
Energy	91	139	53%
Commerce	38	44	16%
National Institutes of Health	41	43	6%
NASA	22	22	0%
Environmental Protection Agency	5	5	0%
Transportation	2	2	0%
Justice	1	1	0%
TOTAL	579	679	17%

In 2003, NNI will focus on fundamental nanoscale research through investments in investigator-led activities, centers of excellence, as well as the supporting infrastructure. Priority research areas will range from research to enable efficient nanoscale manufacturing to innovative nanotechnology solutions for detection of, and protection from, bio-chemical and radiological explosive agents.

Nanotechnology may enable selective and inexpensive detection of threats to human health. The behavior of molecules at the nanometer scale underlies the biochemical processes of life. Medical, health (including the detection of pathogens), and agriculture research will accelerate as we improve our understanding of the chemistry and physics of nanostructures.

Ceramic nanostructured coatings show mechanical properties 2-5 times better than their current analog. Cost effective, high performance, environmentally benign materials are always in high demand for transportation, energy, space, and defense needs. Nanostructures will enable the assembly of materials with specifically tailored properties that should reduce waste and improve performance.