

Concluding Remarks

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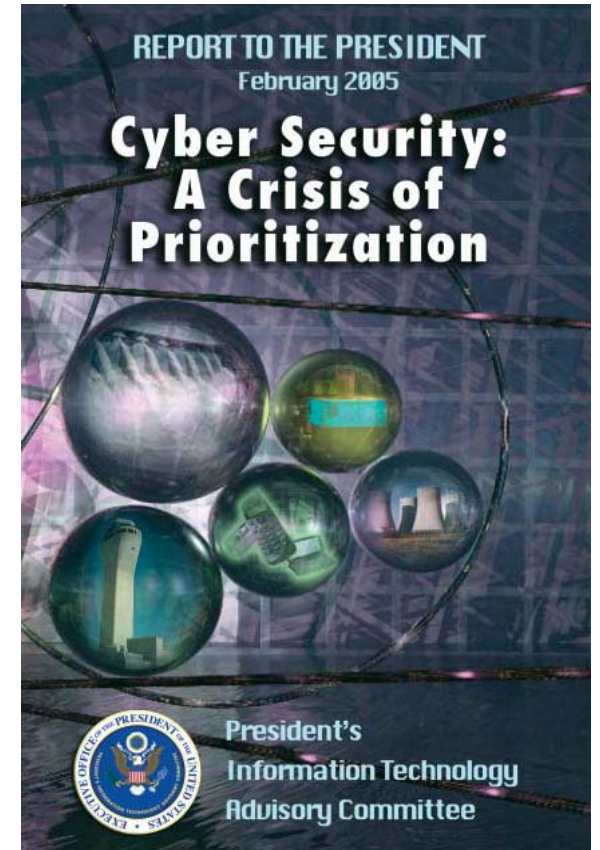
Topics

- Cyber security
- Federal support for fundamental research in information technology



Cyber Security

- The concern is not that eBay will be inaccessible!
- Rather, the concern is that *IT systems are in the control loop of every element of the nation's critical infrastructure* – the electric power grid, the air traffic control grid, the financial grid, etc.
- This constitutes a significant vulnerability



- The nation is perilously under-invested in *fundamental research in civilian cyber security*
 - Work that discovers fundamentally new security architectures, rather than improved band-aids
 - Work that takes advantage of the talent of the nation's full research community
 - Work that impacts the civilian infrastructure and its technologies (upon which all else, including the military, relies)



- DHS
 - Appears not to “get it”
 - 90% of S&T budget is for deployment, vs. research
 - DHS is generally ignoring research
 - <2% of budget is for cyber security
 - DHS is generally ignoring the nation’s infrastructure
- DARPA
 - New program starts in cyber security have been classified
 - Precludes participation by the university community
 - Reduces impact on commercial networks and systems – upon which much of the government, and much of the nation’s critical infrastructure, and much of the military, rely



- NSF
 - FY04 Cyber Trust program, 9/21/2004
 - Funded **8%** of proposals
 - 32 of 390
 - » 2 of 25 Center proposals
 - » 12 of 135 Team proposals
 - » 18 of 230 Small Group proposals
 - Awarded **6%** of requested funds
 - \$31.5M of \$510M



Federal support for fundamental research in information technology

- Why IT?
 - Advances in IT drive advances in all other fields
 - Advances in IT power our economy
 - Not just through the growth of the IT industry – through **Multi Factor Productivity Growth** throughout the economy
 - Advances in IT are the cornerstone of our national security
 - Advances in IT change the way we live, the way we work, the way we learn, the way we communicate
 - IT is where the jobs are

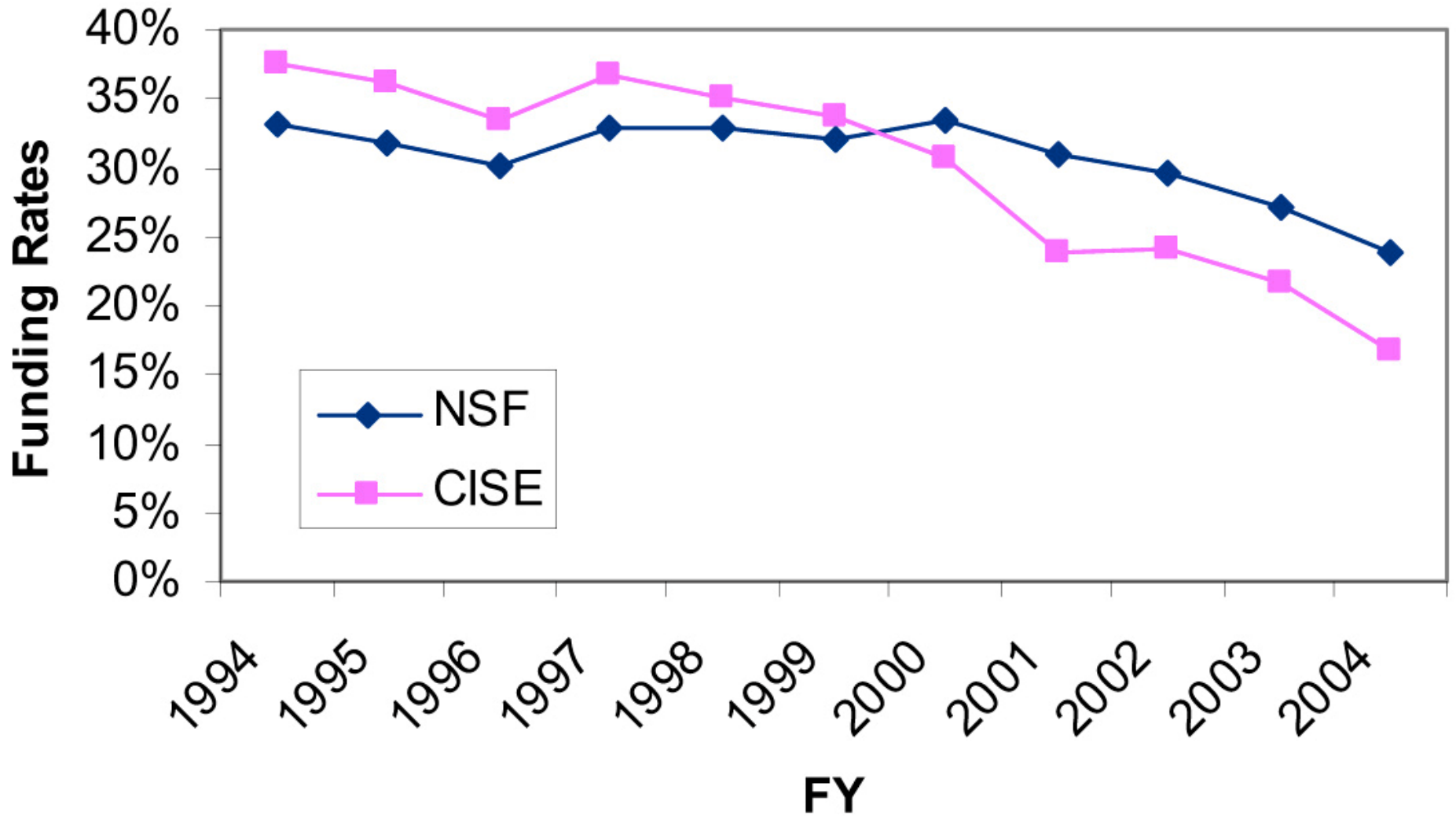


Our broad responsibility

- Governed by the *HPC Act of 1991*, Executive Orders 13035 (2/17/97) and 13092 (7/24/98), and the *Next Generation Internet Research Act of 1998*
 - Offer advice concerning the multi-agency NITRD Program
 - Whether R&D investments are appropriate to maintain America's leadership in information technologies and their application
 - Progress made in implementing the Program
 - Balance among Program components
 - Need to revise the Program
 - Guided by Dr. Marburger's *FY 2005 Interagency Research and Development Priorities* memorandum of 6/5/03



NSF and CISE Funding Rate Trends



Historically, the rapid rate of growth in U.S. microchip capability resulted from a robust national portfolio of long-term research that incorporated both incremental and revolutionary components. Industry excelled in evolutionary technology developments that resulted in reduced costs, higher quality and reliability and vastly improved performance. DOD now is no longer perceived as being seriously involved in – or even taking steps to ensure that others are conducting – research to enable the embedded processing proficiency on which its strategic advantage depends. This withdrawal has created a vacuum where no part of the U.S. government is able to exert leadership, especially with respect to the revolutionary component of the research portfolio.⁴³ The problem, for DOD, the IT industry and the nation as a whole, is that no effective leadership structure has been substituted. Instead, research in these fields is managed through a hodge-podge of programs spawning numerous government agencies. The President’s budget includes “cross-cuts” of the government’s Nanotechnology (the NNI) and IT (the NITRD) research investments, each of which is stitched together by committees representing the participating agencies. However, there is no unified source of leadership that can mount revolutionary programs, let alone ensure that the DOD’s future requirements for programmable microchips will be met.

*Defense Science Board
Task Force*

On

***HIGH PERFORMANCE
MICROCHIP SUPPLY***



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BY [Aliya Sternstein](#)

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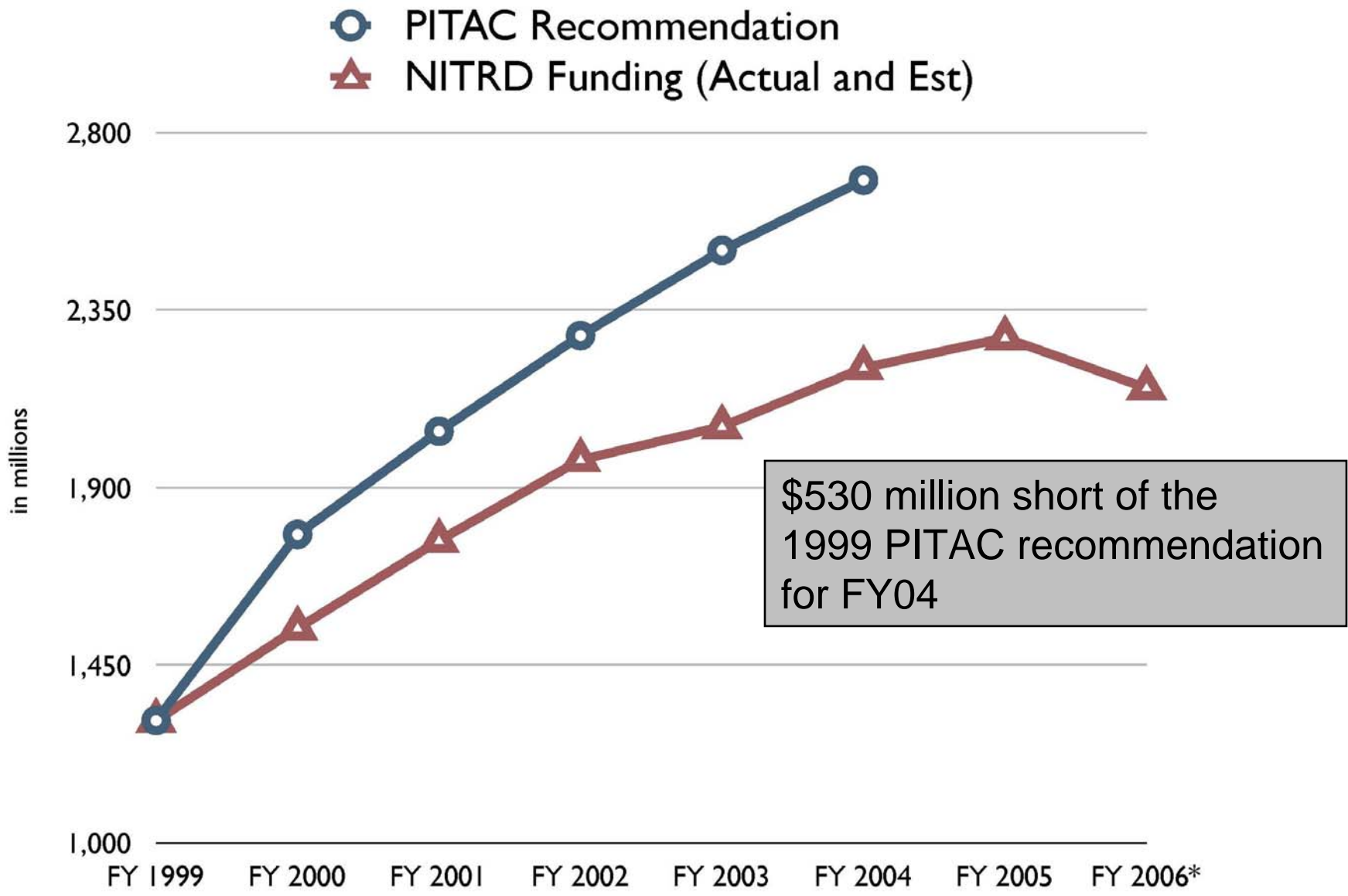
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NASA's Ames Research Center is offering buyouts to all but 70 of its 1,400 federal employees, including many information technology experts. The center, in Mountain View, Calif., developed technology for the Mars rovers and one of the world's fastest supercomputers.



President's Information Technology
Advisory Committee

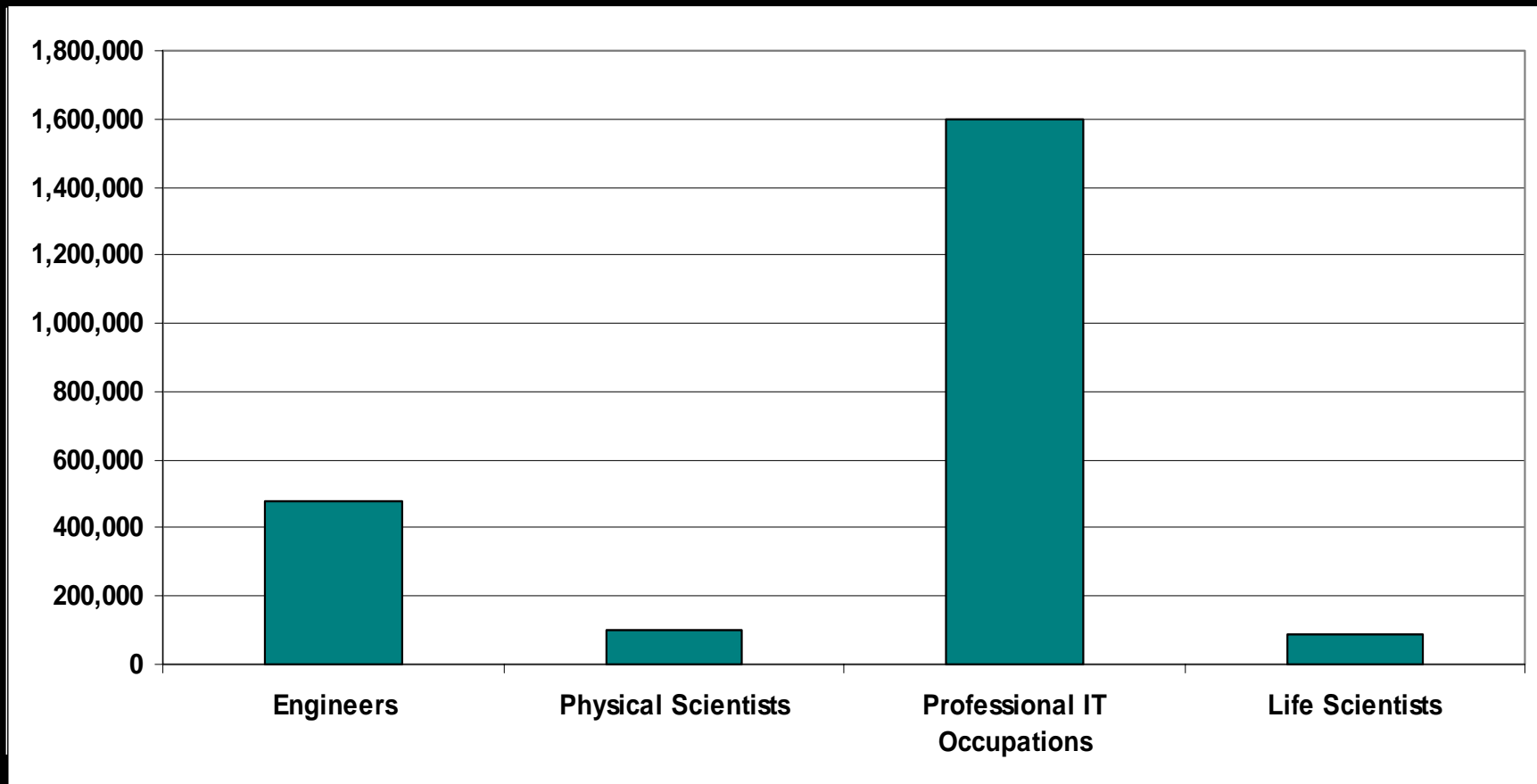
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Sources: *Investing in Our Future*, PITAC, 1999; NCO/IT R&D, 2004

* request

Total Job Openings



- The health of Federal IT R&D is the fundamental issue in our Congressional charter:
 - Are Federal R&D investments appropriate to maintain America's leadership in information technologies and their application?

