



The Federal Networking and Information Technology Research and Development (NITRD) Program

NICT Forum Briefing

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Simon Szykman, Ph.D.

Director

**National Coordination Office (NCO) for Networking and
Information Technology Research and Development**

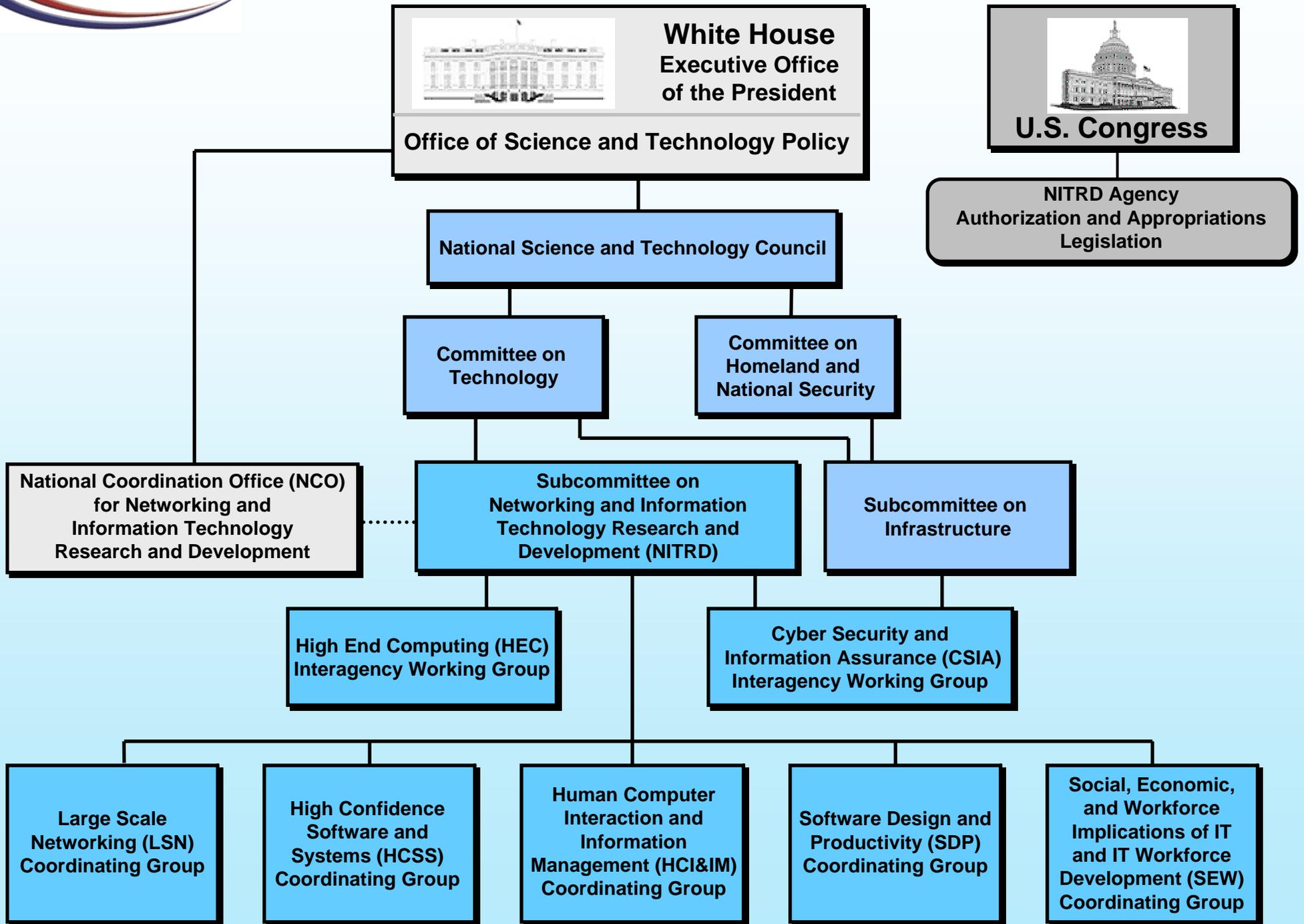


Overview of the NITRD Program

- **Authorization of the Networking and Information Technology Research and Development (NITRD) Program**
 - High-Performance Computing Act of 1991
 - Next Generation Internet Research Act of 1998
- **NITRD Subcommittee, National Science and Technology Council (NSTC)**
 - Representatives from 12 program agencies + OMB + OSTP + NCO/NITRD
 - Has two Interagency Working Groups (IWGs) and five Coordinating Groups (CGs)
- **Budget of \$3.1 billion in FY 2007**



NITRD Program Coordination





Agency NITRD Budgets by PCA

FY 2007 Budget Requests (dollars in millions)

		High End Computing Infrastructure & Applications	High End Computing Research & Development	Cyber Security & Information Assurance ¹	Human-Computer Interaction & Information Management	Large Scale Networking	High Confidence Software & Systems	Social, Economic, & Workforce Implications of IT	Software Design & Productivity	
Agency		(HEC I&A)	(HEC R&D)	(CSIA)	(HCI &IM)	(LSN)	(HCSS)	(SEW)	(SDP)	Total
NSF	2006 Estimate	220.3	62.7	57.6	207.4	82.2	41.3	91.1	47.9	810.3
	2007 Request	272.4	64.1	67.6	220.9	84.0	51.3	92.9	50.7	903.7
OSD and DoD Service research orgs. ^{2,3}		214.6	9.8	0.6 ⁴	138.5	141.8	31.2	0.2	6.9	543.7
		186.0	8.7	0.7 ⁴	135.6	130.7	29.1	0.3	6.8	497.8
NIH ⁵		198.5			188.7	74.9	8.4	12.3	17.9	500.6
		194.7			183.2	74.6	8.3	12.2	17.7	490.7
DARPA ³			94.1	78.7	174.2	21.3				368.3
			117.7	81.6	233.2	33.2				465.7
DOE/SC ⁶		104.4	109.1			38.9		3.5		255.8
		135.3	160.4			45.0		4.0		344.7
NSA ³			89.2	14.1		1.0	36.2			140.5
			62.4	13.3		2.3	39.9			117.9
NASA		60.3		1.3	2.0	5.7	7.0		1.8	78.1
		63.9		1.3	2.0	6.0	7.0		1.8	82.0
AHRQ ⁵					40.1	21.6				61.7
					37.3	20.0				57.3
NIST ⁷		2.3	1.2	9.1	7.8	4.3	9.6		4.6	38.9
		2.3	1.2	11.1	9.8	4.3	9.6		4.6	42.9
DOE/NNSA ⁶		10.0	15.9			1.6		4.6	3.3	35.4
		9.5	23.4			1.6		4.6	2.8	41.9
NOAA ⁷		11.4	1.9		0.2	0.7			1.6	15.8
		16.4	1.9		0.5	2.9			1.6	23.3
EPA		3.3			3.0					6.3
		3.3			3.0					6.3
TOTAL (2006 Estimate)		825.0	383.9	161.3	761.9	393.9	133.6	111.6	84.0	2,855
TOTAL (2007 Request)		883.8	439.9	175.5	825.4	404.5	145.2	114.0	85.9	3,074



NITRD NCO Objectives

- **To support NITRD-related policy making in the White House Office of Science and Technology Policy (OSTP).**
- **To serve as the Federal focal point for interagency technical planning, budget planning, and coordination for the Federal NITRD Program.**
- **To serve as a source of timely, high-quality, technically accurate, in-depth information on accomplishments, new directions, and critical challenges relevant to the NITRD Program.**
- **To augment the impact of information technology R&D as a transforming force for societal and economic good.**



NCO Impact on NITRD Program Activities

- **Increased NITRD interagency R&D coordination and planning activities.**
- **Increased conferences, workshops, and meetings that aid in identifying NITRD needs in strategic areas that are aligned with and benefit national priorities.**
- **Increased NITRD agency interaction and outreach with non-governmental experts to help identify and implement NITRD Program priorities.**



Role of the NCO in NITRD Program Activities

- **The NCO helps the Interagency Working Groups and Coordinating Groups identify research needs, and plan, budget, and assess progress in addressing those needs.**
- **Programs and activities take place at two levels:**
 - Government-only: interagency meetings
 - With external stakeholders: conferences and workshops involving academia and industry
- **Information dissemination takes place through published reports including:**
 - Annual Supplements to the President's Budget
 - Research needs reports
 - Conference and workshop reports
 - Reports of the President's Information Technology Advisory Committee (PITAC)



Program Component Areas (PCAs)

At the core of the NITRD Program structure are eight technical domains called Program Component Areas (PCAs):

- **High-end Computing (HEC) Interagency Working Group (IWG), with two PCAs:**
 - HEC Infrastructure and Applications (I&A) – R&D to extend the state-of-the-art in computing systems and data management.
 - HEC Research and Development (R&D) – R&D to optimize the performance of today's high-end computing systems and to develop future generations of high-end computing systems.
- **Cyber Security and Information Assurance (CSIA) Interagency Working Group (IWG):**
 - Fundamental and applied R&D to improve the security and assurance of information systems.

- **Human Computer Interaction and Information Management (HCI&IM):**
 - R&D aimed at increasing the benefit of computer technology to humans through development of user interaction technologies, cognitive systems, information systems, and robotics.
- **Large Scale Networking (LSN):**
 - R&D for development of leading-edge networking technologies, services, and techniques to enhance performance, security, and scalability, and in support of high performance research networks.
- **Software Design and Productivity (SDP):**
 - R&D focused on achieving fundamental advances in concepts, methods, techniques, and tools for software design, development, and maintenance.

PCAs (continued)

- **High Confidence Software and Systems (HCSS):**
 - R&D for technologies necessary to achieve affordable and predictable high levels of safety, security, reliability, and survivability in critical systems.
- **Social, Economic, and Workforce Implications of IT and IT Workforce Development (SEW):**
 - R&D investigating the nature and dynamics of IT impacts on technical and social systems, interactions between people and IT devices and capabilities, workforce development needs, and innovative IT applications in education and training.



Recent Highlights of the NCO/NITRD

- **Recently released the FY 2007 Supplement to the President's Budget for the NITRD Program.**
- **Added CSIA as a new NITRD PCA, and the CSIA IWG as a new NITRD group.**
- **Elevated the HEC CG to an IWG.**
- **Department of Homeland Security recently joined the NITRD Program.**
- **Recent workshops:**
 - **HCSS CG-sponsored Workshop on High Confidence Medical Device Software and Systems held on June 2-3, 2005.**
 - **HEC IWG-sponsored Workshop on Storage and I/O Needs for High End Computing, held on August 16-17, 2005.**
 - **LSN CG-sponsored Optical Networking Testbed 2 (ONT2) Workshop on September 12-14, 2005.**



Highlights of Ongoing NCO/NITRD Activities

- **Recently signed contract for a National Academies study on problems that are computing and/or data intensive and their mathematical nature (report expected in mid-2007).**
- **Supporting development of a Federal Plan for Cyber Security and Information Assurance (CSIA) R&D, and the integration of the CSIA IWG into the NITRD Program.**
- **Future workshops (tentative):**
 - Software for Critical Aviation Systems
 - Beyond SCADA and Distributed Control Systems
 - Cyber Security and Information Assurance
 - Large Scale Networking – Global Environment for Network Innovations
 - Information Integration
 - Interoperability
 - High-Confidence Real-Time Operating Systems



PITAC-Related Highlights of the NCO/NITRD

- **The NCO supports the President's Information Technology Advisory Committee (PITAC), whose responsibilities have now been assigned to the President's Council of Advisors on Science and Technology (PCAST)**
- **The previous PITAC released the following reports:**
 - *Computational Science: Ensuring America's Competitiveness*
 - *Cyber Security: A Crisis of Prioritization*
 - *Revolutionizing Health Care Through Information Technology*
- **PCAST, as the new PITAC, is expected to do a high-level review of the NITRD Program**
 - New members in the process of being added to support PCAST in their IT advisory capacity.
 - PCAST briefed on the NITRD at their latest public meeting in January 2006.



Questions?

- Visit <http://www.nitrd.gov/>
- Send e-mail to nco@nitrd.gov
- Call us at (703) 292-4873