

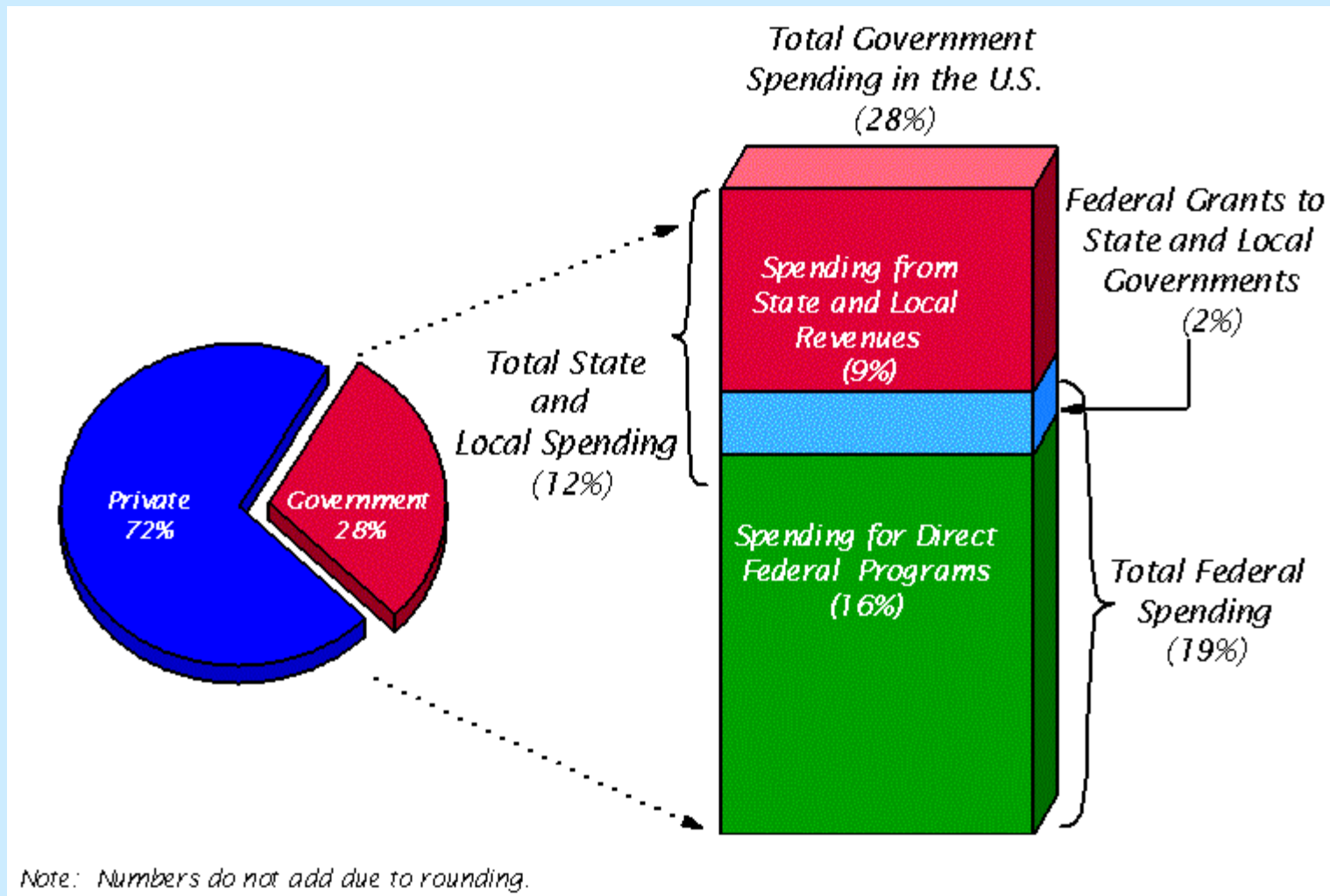


R&D in the President's FY 2002 Budget

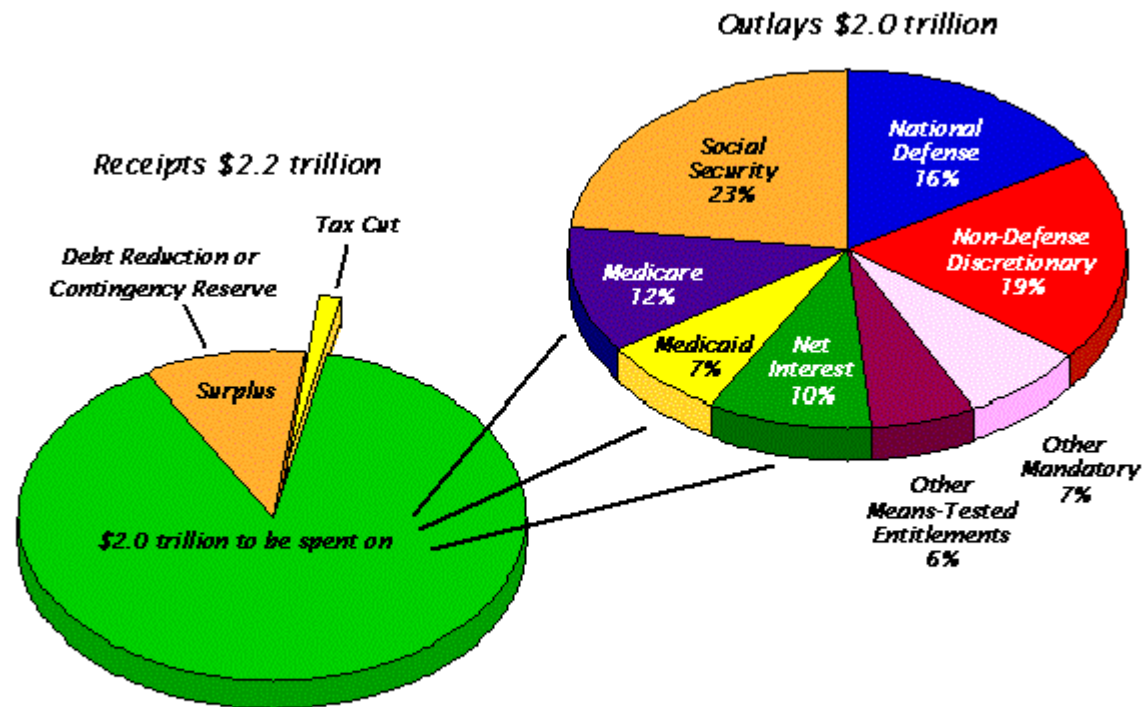
Michael Holland

May 15, 2001

Government Spending as a Share of GDP, 2000



The President's Proposal for FY2002

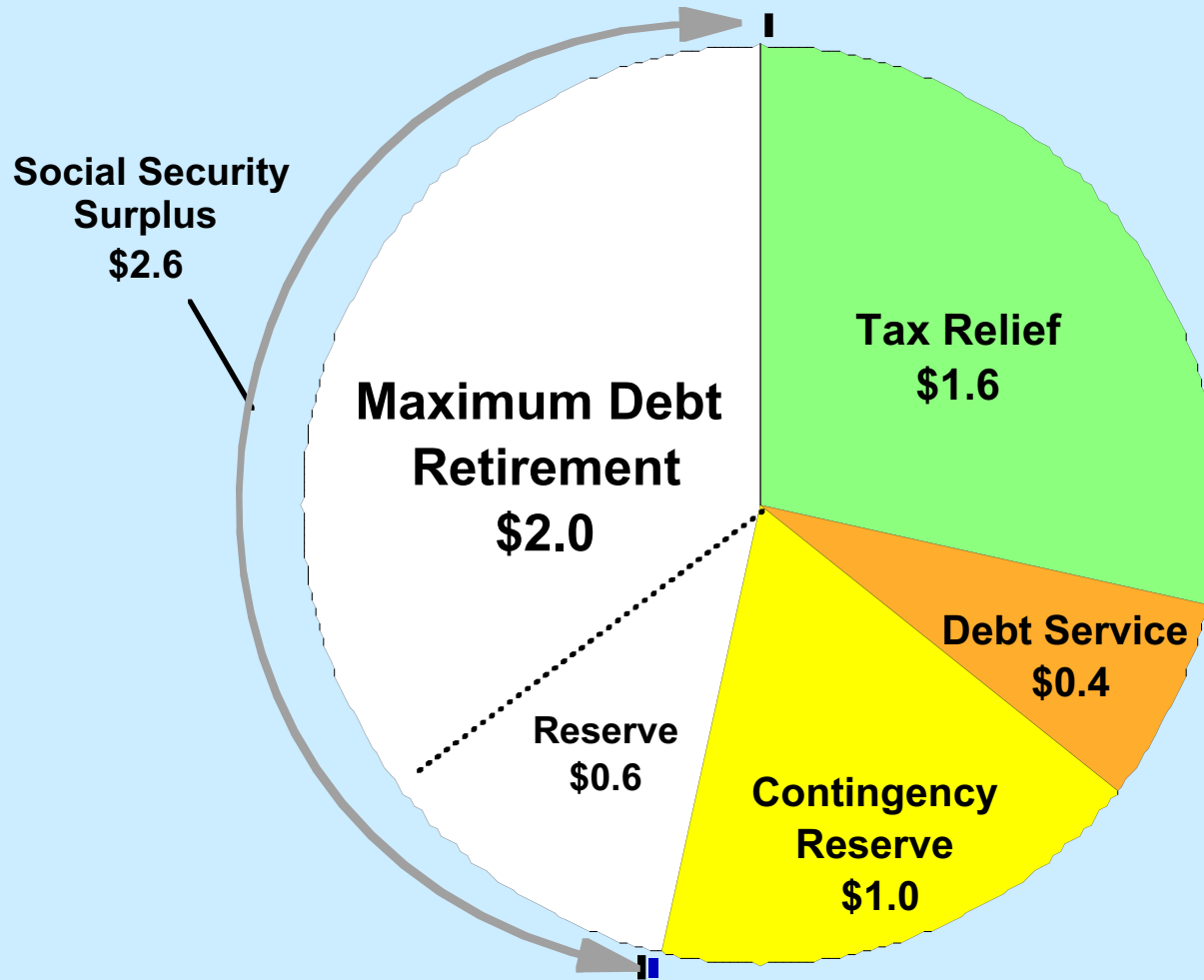


** Means-tested entitlements are those for which eligibility is based on income. The Medicaid program is also a means-tested entitlement.*

Proposed FY 2002 Tax Cut = \$29 billion. (Budget Table S-2)

President's Proposed Allocation of the 10-year Surplus

\$5.6 Trillion, 2002-2011



2002 Discretionary Spending

(\$ in billions)

Additions

- Campaign initiatives +15.3
- Pay & programmatic +19.0
- National Emergency Reserve +5.6
- Technical adjustments +5.6

Offsets

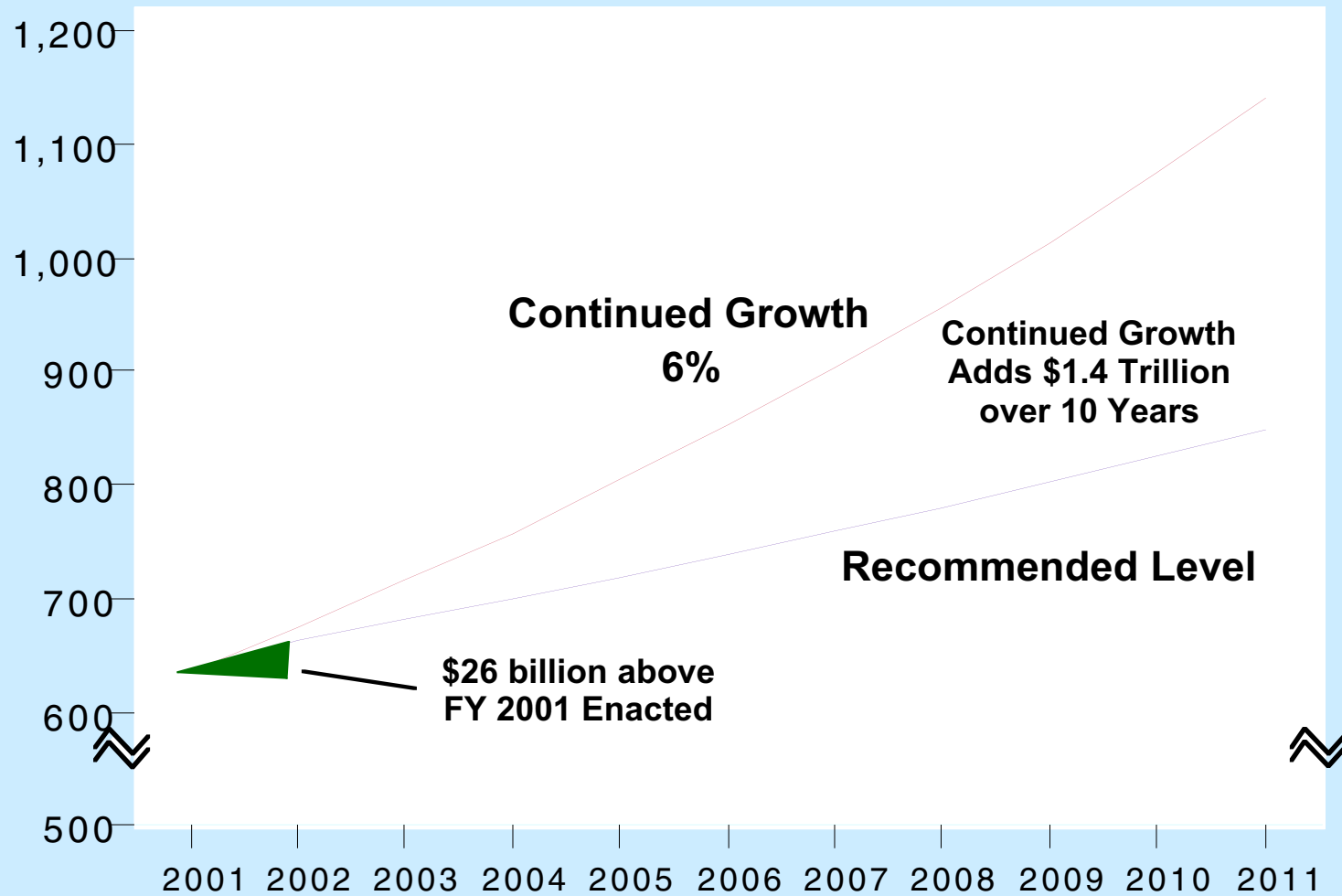
- Non-repetition earmarked funding -4.3
- Non-repetition one-time funding -4.1
- Program decreases -11.5

Net Increase

+25.7 (4.0% increase)

Moderating the Growth of Spending

Budget authority in billions of dollars



Note: Six percent is average growth in budget authority over the past three years.

Campaign Initiatives

(\$ in billions)

• Strengthen and Reform Education	+3.6
• Revitalize National Defense	+4.4
• Invest in Health Care	+2.9
• Comprehensive Energy Policy & Protect Environment	+1.4
• Combat Crime and Drug Abuse	+1.4
• Champion Compassionate Conservatism	+0.7
• Assist Americans with Disabilities	+0.3
• Strengthen Families	+0.3
• Reform the Immigration System	+0.2
• Promote Volunteerism	+0.2
Total	+15.3

(further details in *A Blueprint for New Beginnings*)

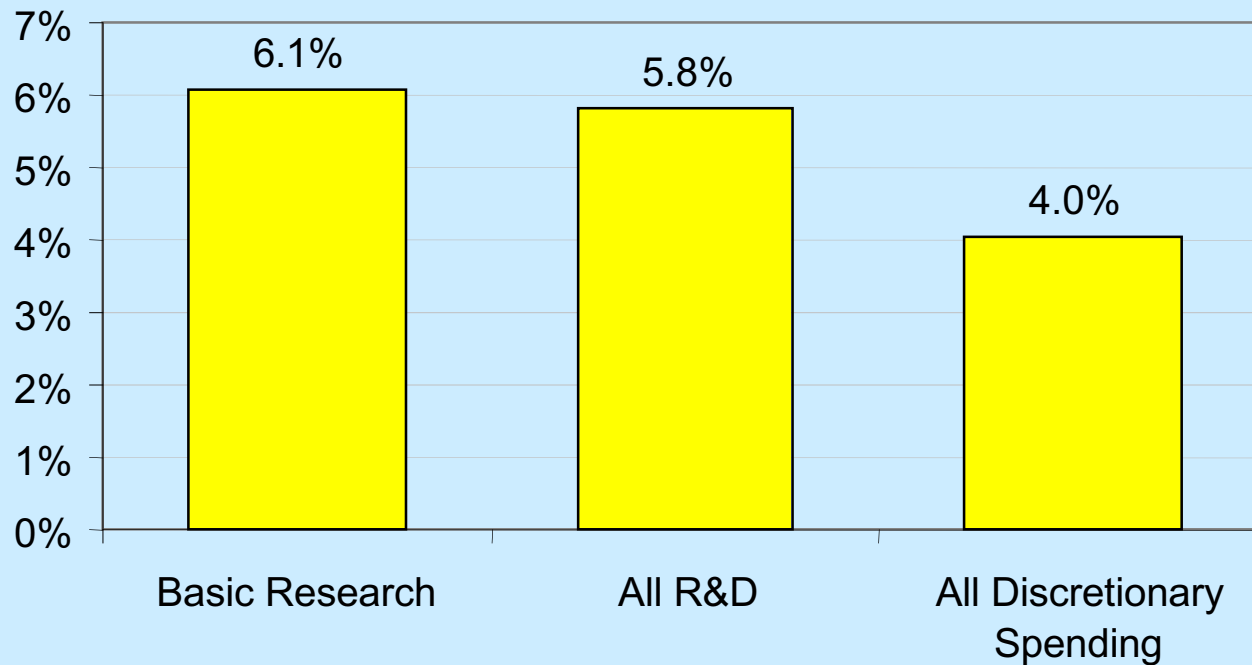
FY 2002 R&D Budget Summary

- Spurs Private R&D investments
 - R&E Tax Credit
(\$1.7 billion FY 2002; \$9.9 billion FY 2002-2006)
- Sets Federal R&D as Priority
 - 6% growth (vs. 4% discretionary growth)
- Establishes commitment to health research
 - Doubles NIH by FY 2003
- Addresses Math/Science Education Needs
 - at least \$1 Billion over five years

R&D a Clear Priority

Federal R&D Proposal Outpaces All Other Discretionary Programs

Increases in Budget Authority 2001-2002



Federal R&D in 2002

An All-Time High

	2001 Estimate	2002 Proposed	Percent Change: 2001 to 2002
Basic Research	22,018	23,352	6%
Applied Research	20,734	21,553	4%
Development	42,594	45,954	8%
R&D Facilities and Equipment	4,664	4,394	-6%
Total	90,010	95,253	6%

FY 2002 R&D Highlights

Important Priorities within the Agency Totals

		2001 Estimate	2002 Proposed	Percent Change 2001-2002
NIH	- Biomedical research	20,361	23,112	14%
DOD	- R&D initiative	0	2,600	NA
NASA	- Space Launch Initiative	290	475	64%
	- Astronomical Search for Origins	123	194	57%
	- Earth Observing System Follow-on Program	55	130	136%
NSF	- Math and Science Partnership Initiative	0	200	NA
	- Mathematical Sciences	121	141	17%
	- Nanoscale Science, Engineering and Technology	150	174	16%
USDA	- Biotechnology	197	204	4%
	- Bioproducts and Bioenergy	240	249	4%
DOC	- Ocean Exploration	4	14	250%
	- National Polar-orbiting Operational Environmental Satellite	73	157	115%
	- NIST internal research	313	347	11%
DOT	- Highway Surface Transportation	73	114	56%
	- Intelligent Transportation Systems Initiative	41	62	51%
Education	- National Institute on Disability and Rehabilitation Research	100	110	10%
Networking and Information Technology Research and Development*		1,929	1,969	2%
Nanoscale Science, Engineering and Technology*		446	482	8%

* Note: Final DoD R&D funding levels will be based on results of a Defense strategy review, currently underway. DoD FY 2002 R&D projections shown are extrapolated from FY 2001 appropriated levels, adjusted for inflation.

Federal Science & Technology (F S&T) Budget

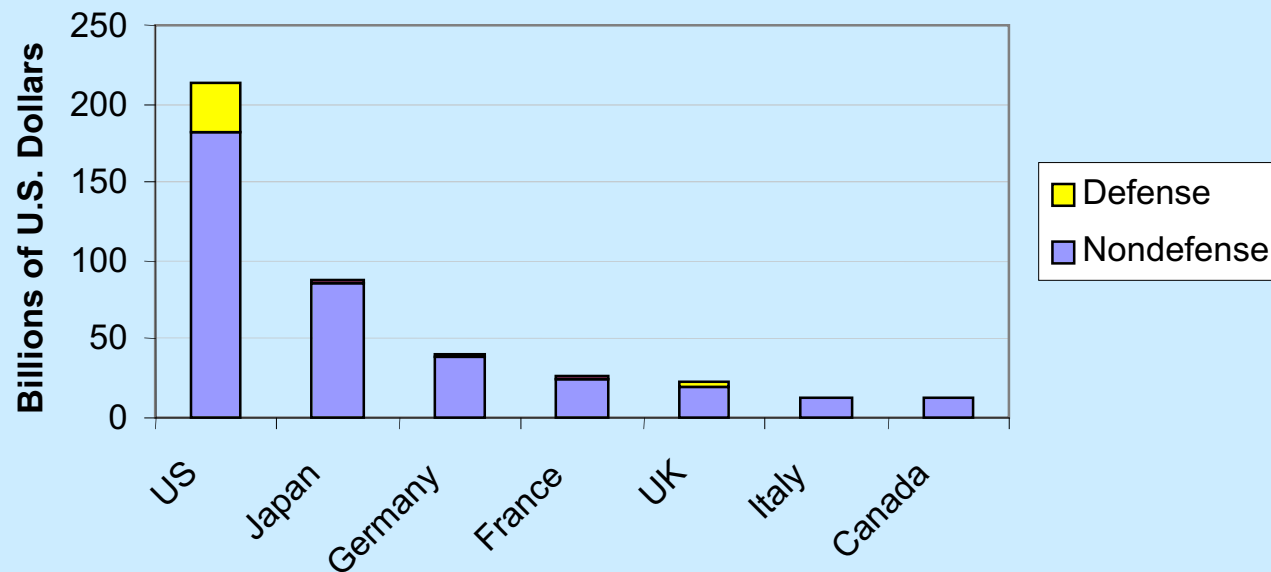
By Agency	21st C. Res. Fund 2001 Est.	FS&T 2001 Estimate	FS&T 2002 Proposed	FY 2001 Delta 21CRF to FS&T	
National Institutes of Health	20,361	20,361	23,112		
NASA [1]	5,523	6,957	7,038	1,434	21%
Defense [2]	4,981	4,981	5,086		
Energy [3, 4, 5]	4,178	4,910	4,682	732	15%
National Science Foundation	4,416	4,416	4,472		
Agriculture [6, 6a, 7]	1,690	1,831	1,759	141	8%
Interior (USGS)	883	883	813		
Commerce [8]	851	809	711	(42)	-5%
EPA [9]	604	732	679	128	17%
Transportation [10, 11]	621	621	631		
Education [12]	363	363	368		
Veterans Affairs [13]	350	350	360		
TOTAL	44,821	47,214	49,711	2,393	5%

Notes: [1] FY 2002 includes mission support. [2] FY 2002 entries for DOD research represent a projection from the enacted FY 2001 levels plus inflation. FY 2002 levels are subject to change as a result of the Defense Strategy Review now underway. [3] Part of change in 2002 due to transfer from science programs. [4] Excludes state grant programs. [5] 2001 level includes \$117 million unavailable until the last day of FY 2001. [6a] Includes net mandatory funding (baseline mandatory availability, less proposed discretionary savings) for competitive research grants through the Initiative for Future Agriculture and Food Systems (IFAFS) and the Fund for Rural America (FRA). [6] Excludes buildings and facilities. [7] Forest and Rangeland Research. [8] Excludes Manufacturing Extension Program. [9] Science and Technology account, including transfer from Superfund. [10] Includes research and development funding for the Federal Highway Administration, the Federal Motor Carrier Safety Administration, and the National Highway Traffic Safety Administration. [11] Federal Aviation Administration Research, Engineering, and Development. [12] National Institute on Disability and Rehabilitation Research. [13] Medical and Prosthetic Research.

National R&D Spending

National R&D Investment is Strong

G-7 National R&D Investment



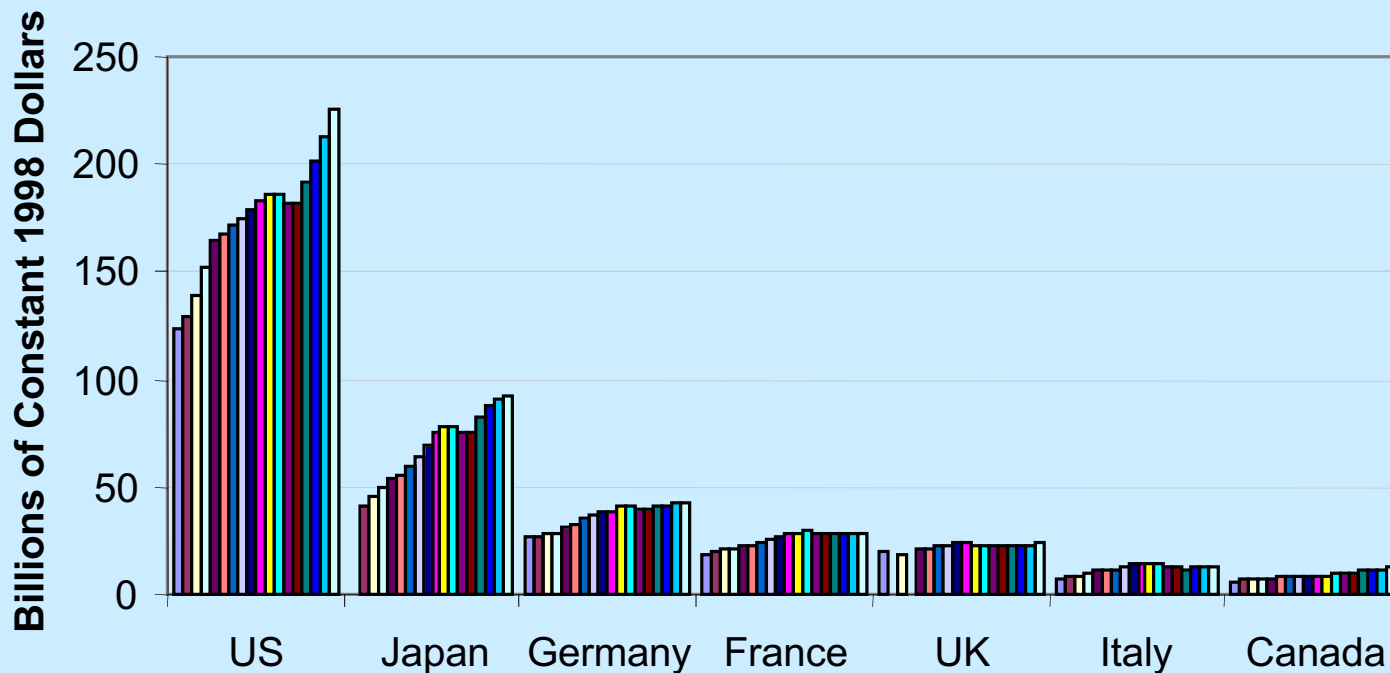
U.S. National R&D spending in 1998 was greater than the combined R&D spending of the other G-7 countries

Source: National Science Foundation

National R&D Spending

National R&D Investment is Strong
...and Getting Stronger

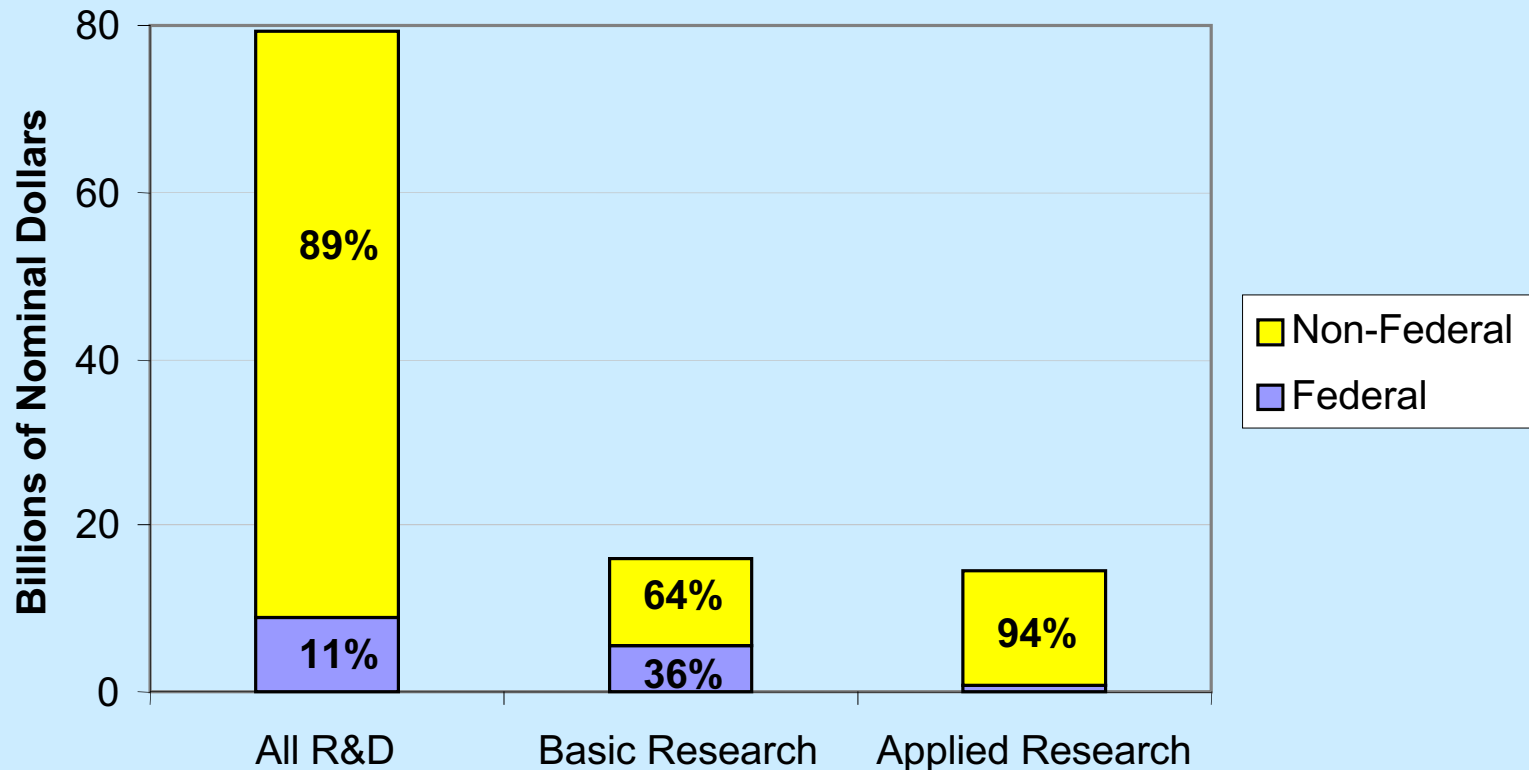
R&D Spending 1981-1998



Source: National Science Foundation

Increased U.S. R&D Spending Is Due Mostly to Private Sector

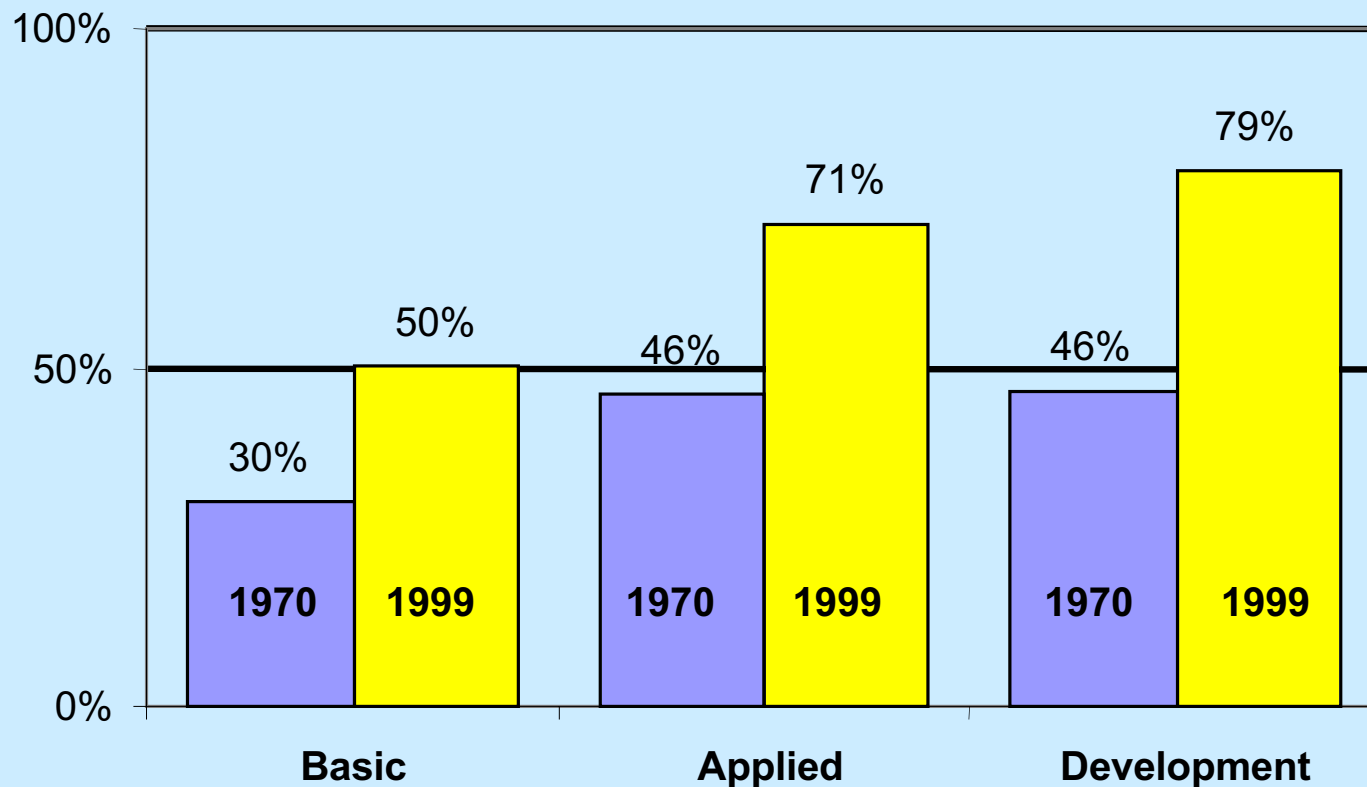
(Increase Shown from 1993-1999)



Source: National Science Foundation

Private Sector R&D

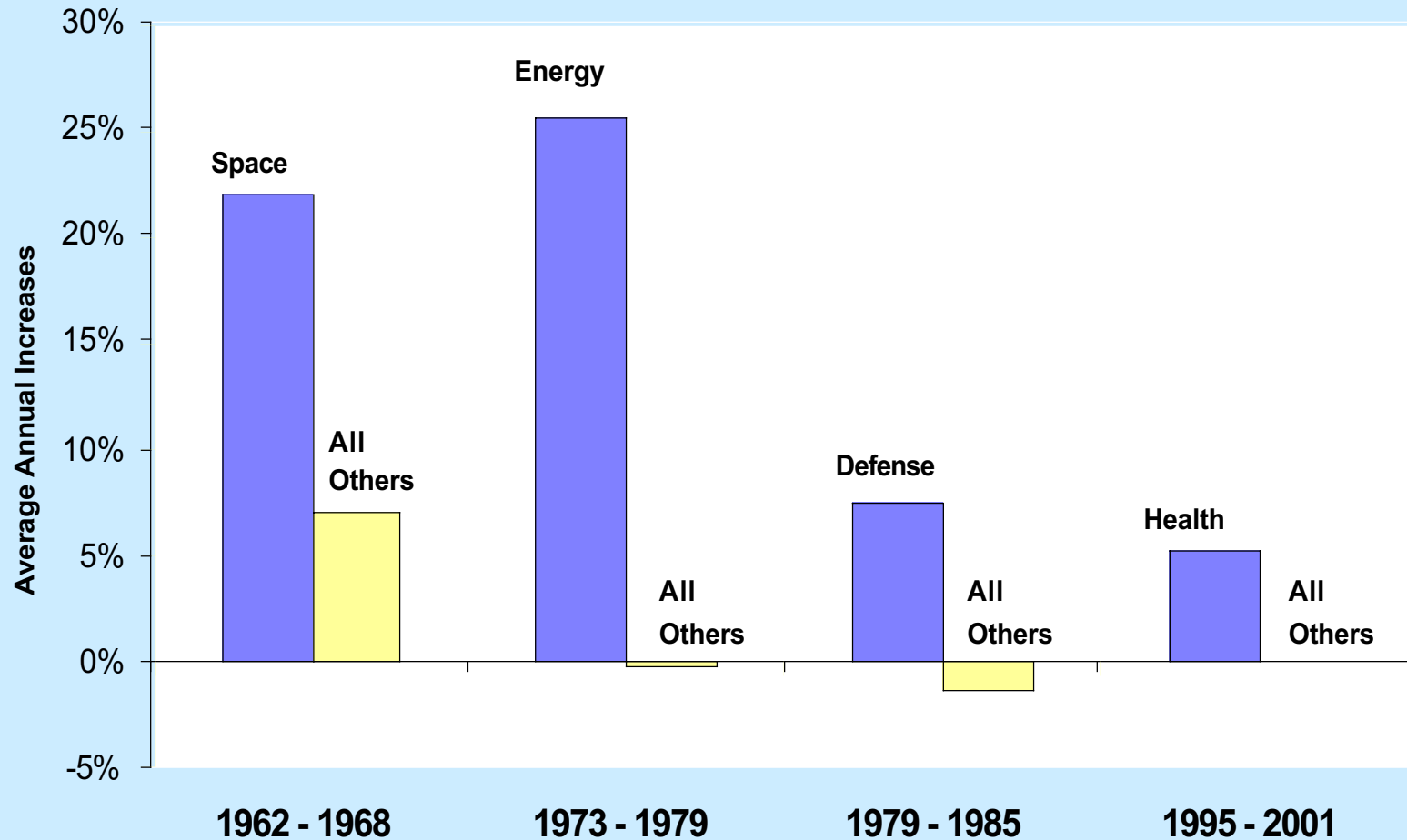
Private Share of Total Has Increased Dramatically



Source: National Science Foundation

Historical R&D Priorities

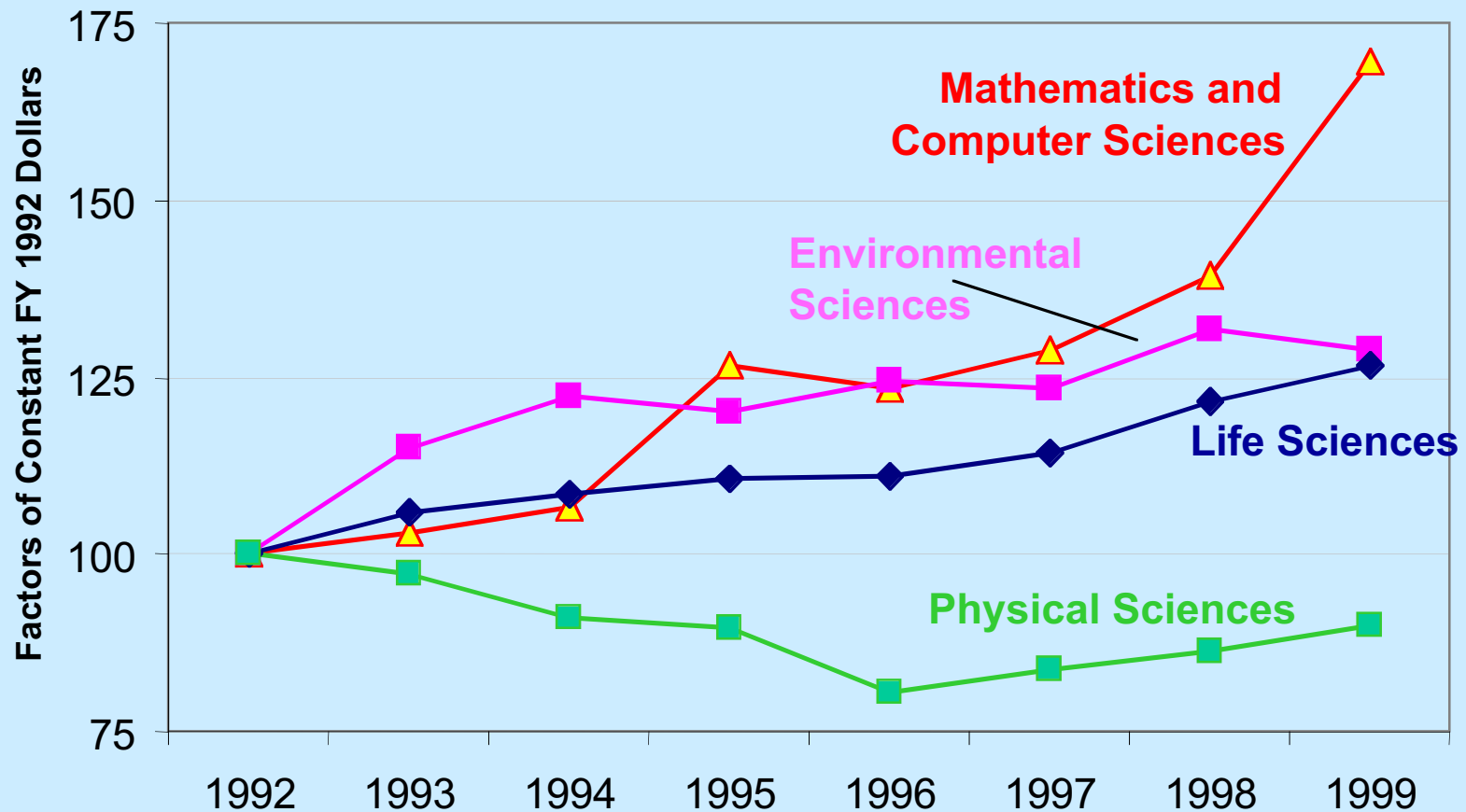
(obligations, in 1996 constant dollars)



Source: National Science Foundation

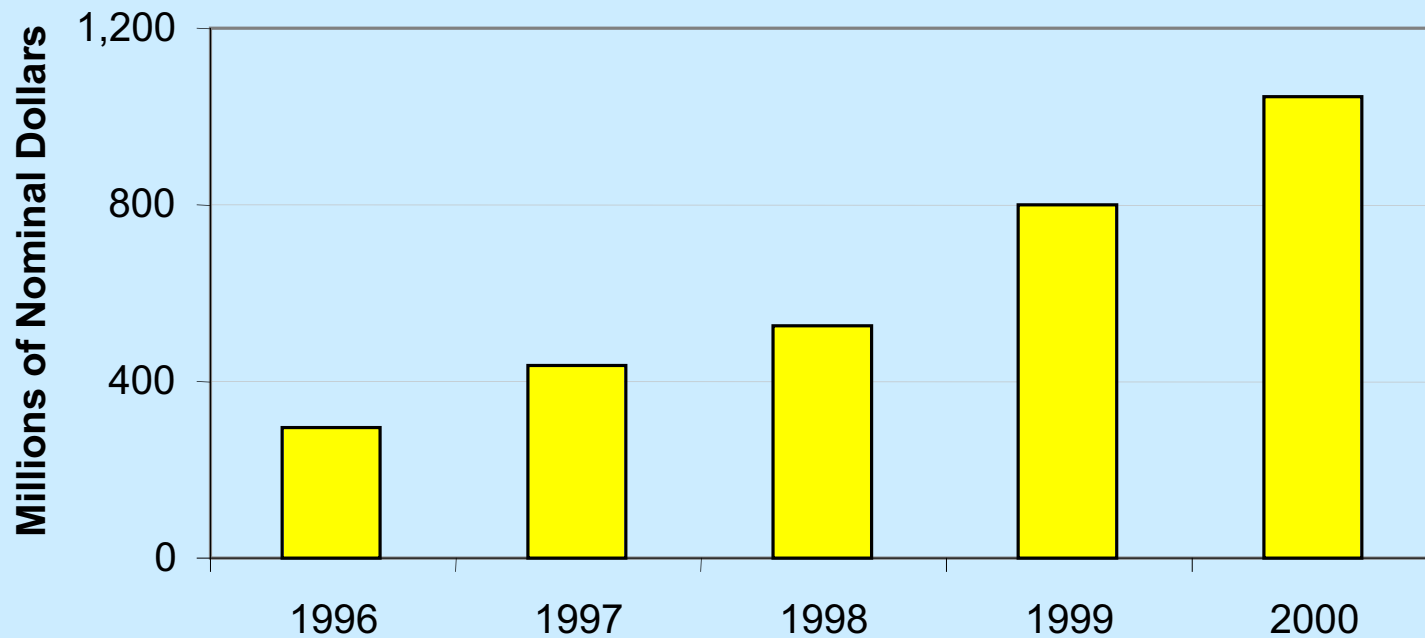
R&D Balance

In Addition to Life Sciences,
Some Other Disciplines Have Done Well

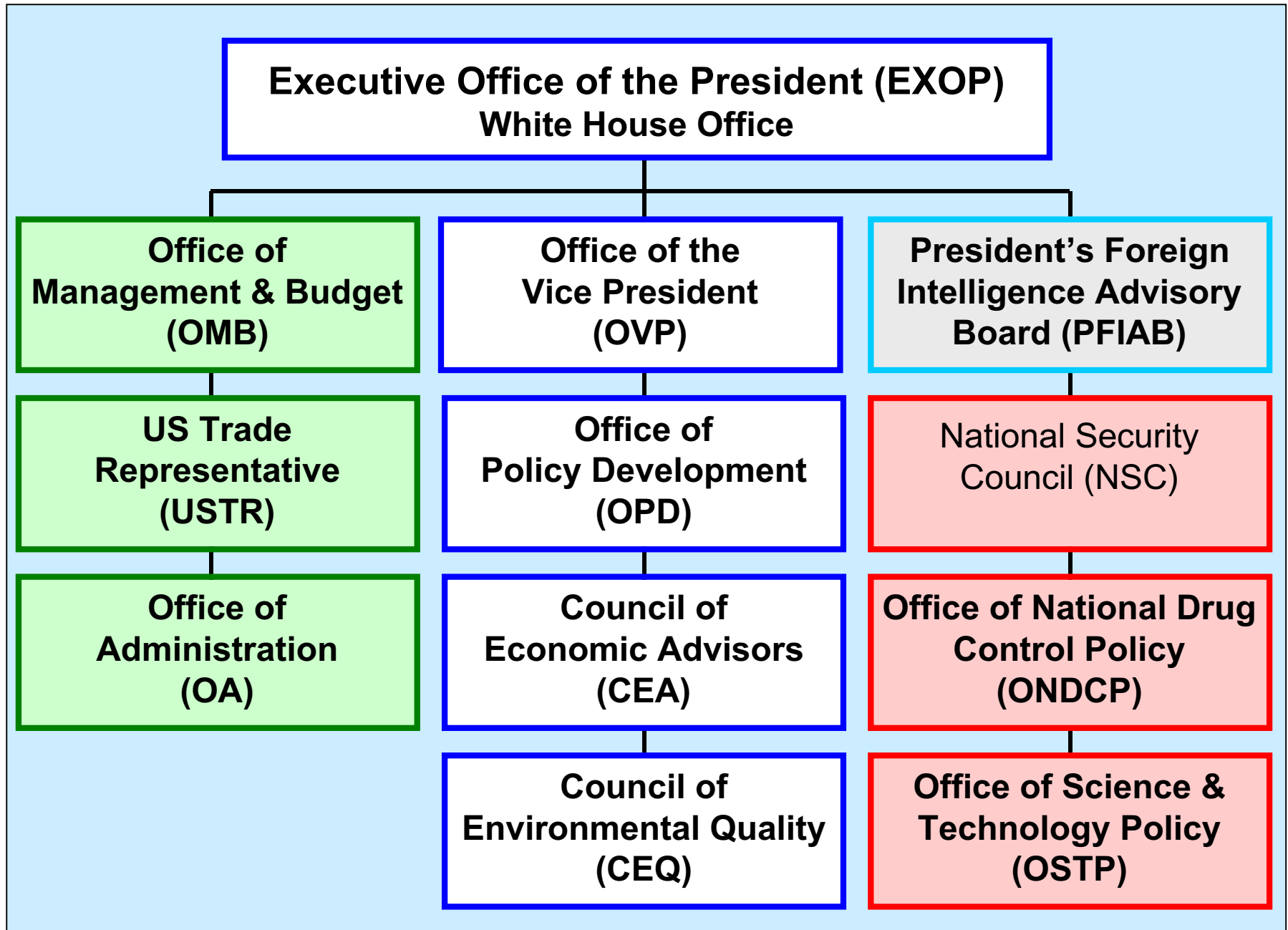


Earmarks to Universities & Colleges

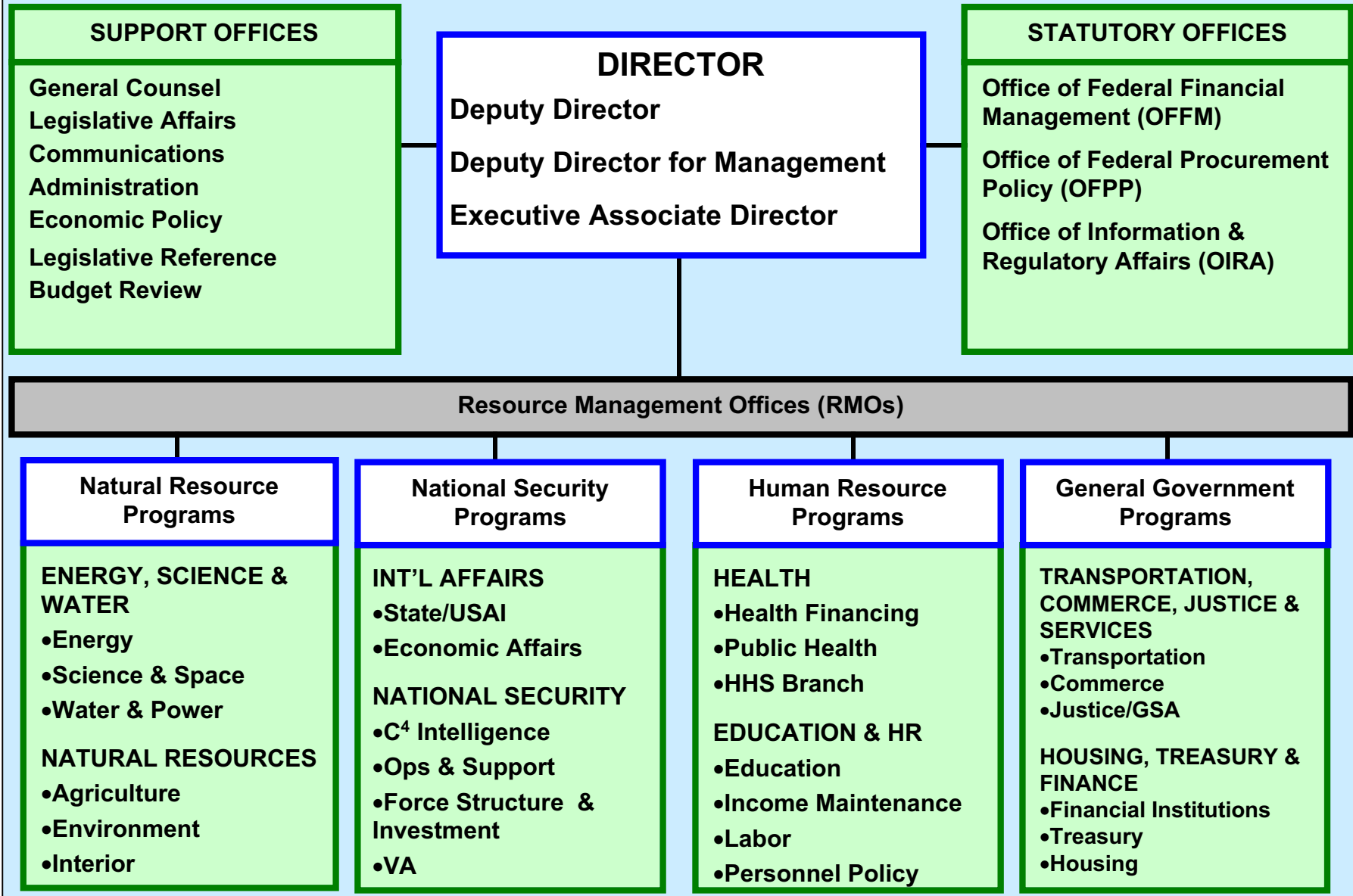
Increasing at Alarming Rate,
Undermining Competitive, Merit-Based Efforts



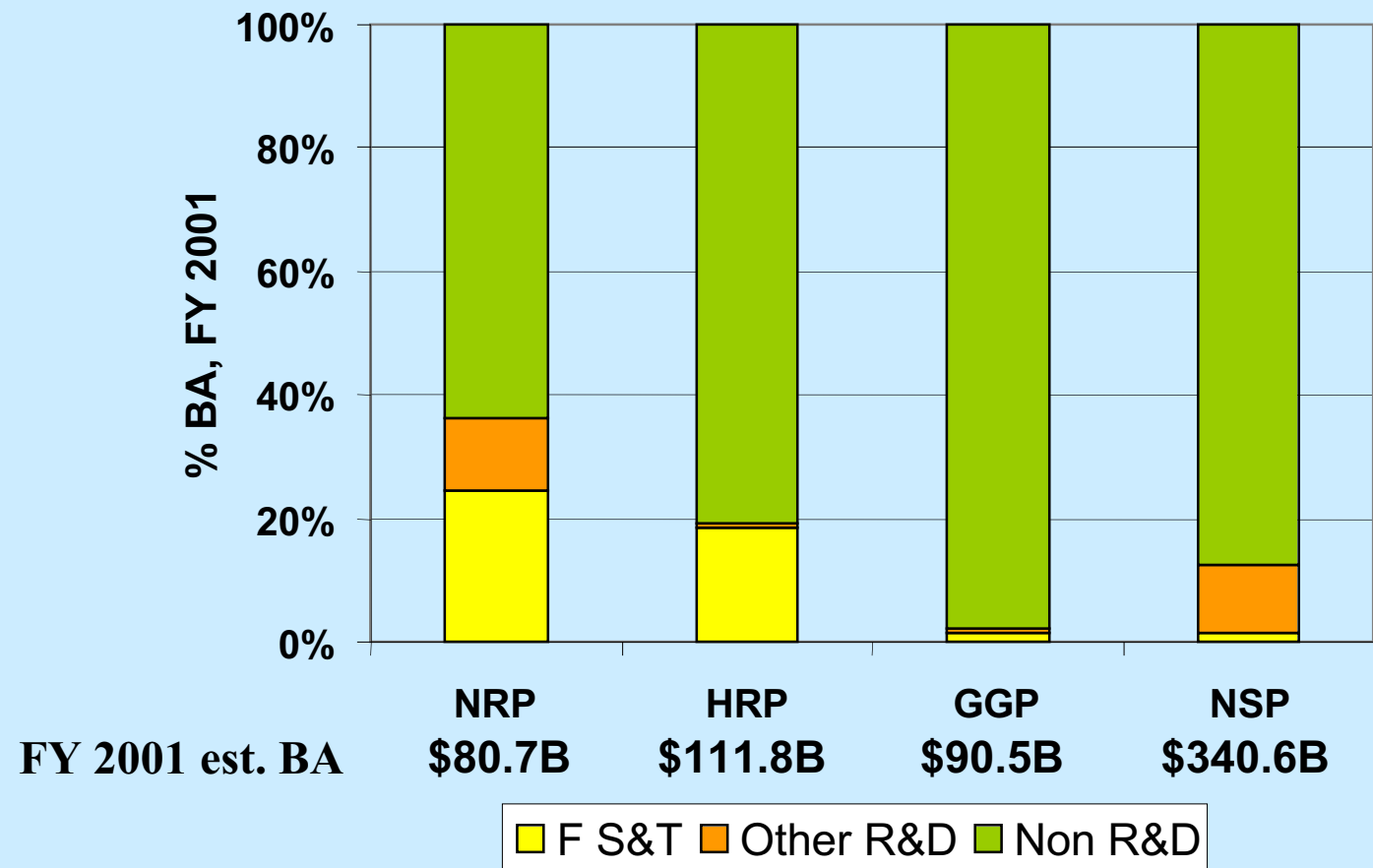
Source: Chronicle of Higher Education



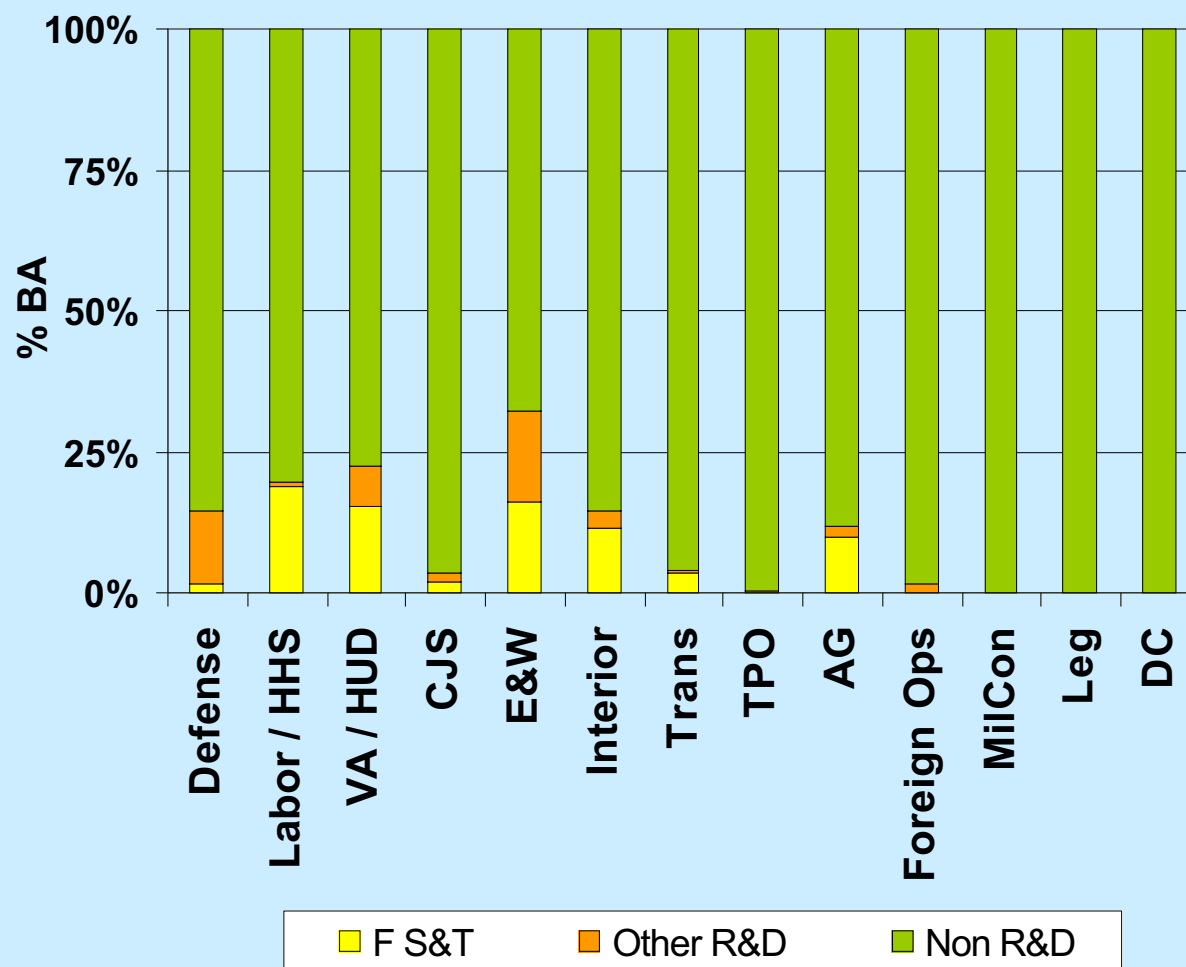
Office of Management & Budget



R&D as a Percentage of OMB PAD \$



R&D as % of Approp. Comm. \$



Appropriation Committee FY 2001 Totals

Appropriation Subcommittee (BA, \$ billions)	FY 01 Total	Est. R&D	Est. F S&T
Defense	287,593	41,751	4,981
Labor, HHS, and Education	109,400	21,485	20,724
VA, HUD, Independent Agencies	80,700	18,259	12,455
Commerce, Justice, State & the Judiciary	37,600	1,260	809
Energy & Water Development	23,570	7,583	3,840
Interior	19,000	2,768	2,178
Transportation	18,300	743	621
Treasury, Postal Service, and General Government	15,800	68	
Agriculture & Rural Development	16,100	1,913	1,606
Foreign Operations	14,900	217	
Military Construction	9,000		
Legislative	2,700		
District of Columbia	448		
Discretionary Spending, Excluding Offsets Designated for Discretionary	635,111	96,047	47,214

R&D Policy Issues for FY 2003 and Beyond

- What does “Balance” mean?
 - There will always be national priorities.
- How do policy officials know when the portfolio is balanced?
- What are the decision rules for adding new resources? Can we come up with “Raines Rules” for basic and applied research (see attached)?

“Raines Rules” for IT Investment

IT Investments must:

- Support core/priority mission functions,
- Be undertaken because no alternative private sector or govt. source can efficiently support the function,
- Support work processes that have been redesigned to reduce cost, improve effectiveness and make maximum use of off-the-shelf technology,
- Demonstrate a projected return on investment that is clearly equal to or better than alternative uses of public resources
- Be consistent with existing architectures,
- Be implemented in a manner that reduces risk,
- Be implemented in phased chunks, each with independent benefits, and
- Employs a performance-based acquisition strategy that appropriately allocates risk between govt. and contractor.