Computing Research Association

Snowbird 2004

The State of Computing Research
The State of CRA

Snowbird 2004

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Good News – we Have a Great Story to Tell

- Computing maps directly onto national priorities
  - Health
  - Defense / Homeland Security
  - Economic strength & competitiveness
- Two-thirds of productivity gains since 1995 due to IT
  - "Information Technology has been the distinguishing feature of this pivotal period in American economic history" – Alan Greenspan

The Computing Research Story

- Significant economic activity in Computer and Communications segment
  - All based on results of long-term Federally-funded computing research
  - Significant contributions to balance of payments

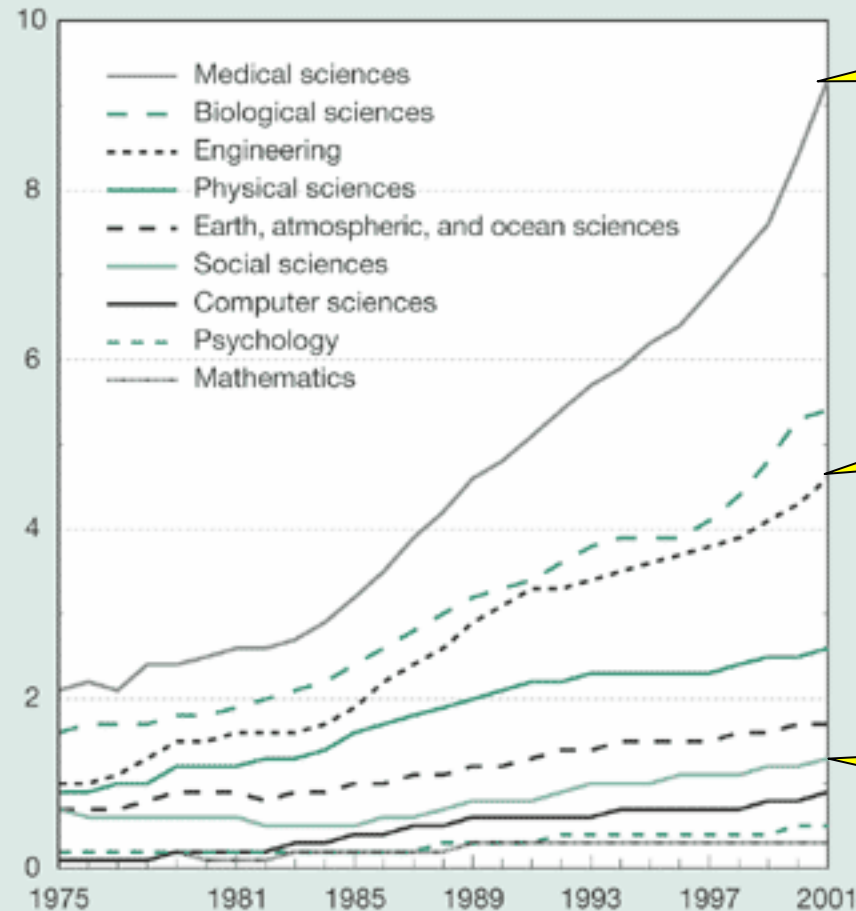# The Computing Research Story

- Computing is improving our lives
- Computing has changed the conduct of scientific research
- Demand for IT professionals projected strong for next 10 years

Good News – Overall Research Funding is Increasing

- Bad News – CS & Engineering not keeping up

Academic R&D expenditures, by field: 1975–2001
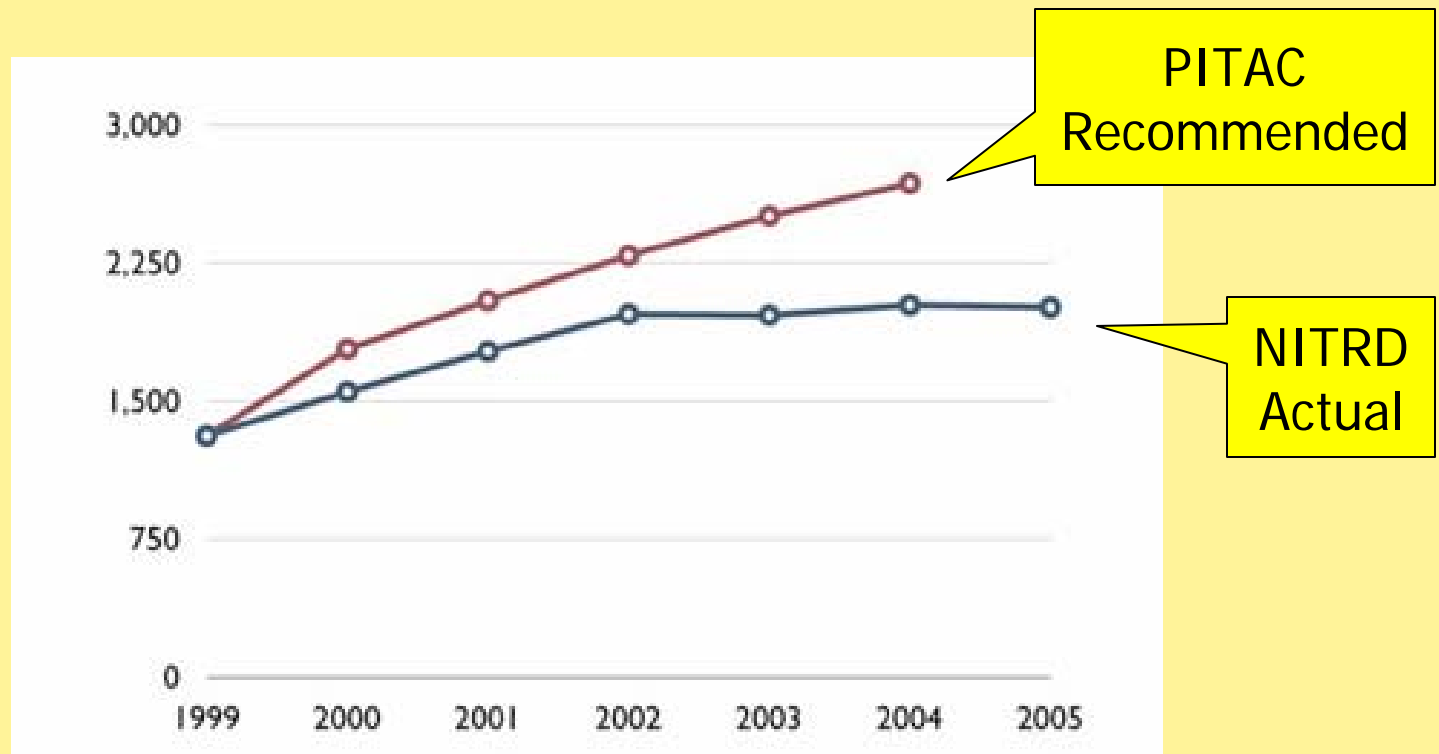
Billions of constant 1996 U.S. dollars

Legend:
- Medical sciences
- Biological sciences
- Engineering
- Physical sciences
- Earth, atmospheric, and ocean sciences
- Social sciences
- Computer sciences
- Psychology
- Mathematics

Labels: Medical, Engr., CS

Y-axis: 0, 2, 4, 6, 8, 10
X-axis: 1975, 1981, 1985, 1989, 1993, 1997, 2001

More Bad News

- Computing Research not even being funded at PITAC-recommended levels

More Bad News – NITR&D Funding Decreasing

	FY04	FY05	% Change
NSF	$754	$761	1%
NIH	$368	$371	1%
DOE	$344	$354	3%
NASA	$275	$259	-6%
DOD	$252	$226	-10%
NIST, NOAA	$26	$33	27%
EPA	$4	$4	0%
TOTALS	$2,023	$2,008	-1%

Funding Expectations Flat

- "We" may have to make do with less
  - There are more of "us" each year

- Especially hard on new faculty
  - Overall NSF acceptance rates in 25-27% range
  - CISE typically 5-10%, sometimes lower

Good News - CISE Staff Increase

- At last!
- 8-10 program director positions to fill

- Plus two Division Director openings

Good News

- PITAC back in business
  - 5 CRA present/past board members
    - Lazowska (co-chair), Bajcsy, Patterson, Reed, Spafford
- Topics
  - Cyber Security
  - Health and IT
  - Computational Science

CRA – SPEAK WITH ONE VOICE FOR COMPUTING RESEARCH COMMUNITY

- The case for computing research
- The case for graduate school
- Advocacy and testimony on the Hill
- Information collection and dissemination

Good News

- Computing is Everywhere
- (No Bad news here :)

CRA Role

- Engage the broader Computing Research community
  - IT Deans
  - ECEDHA
  - ………
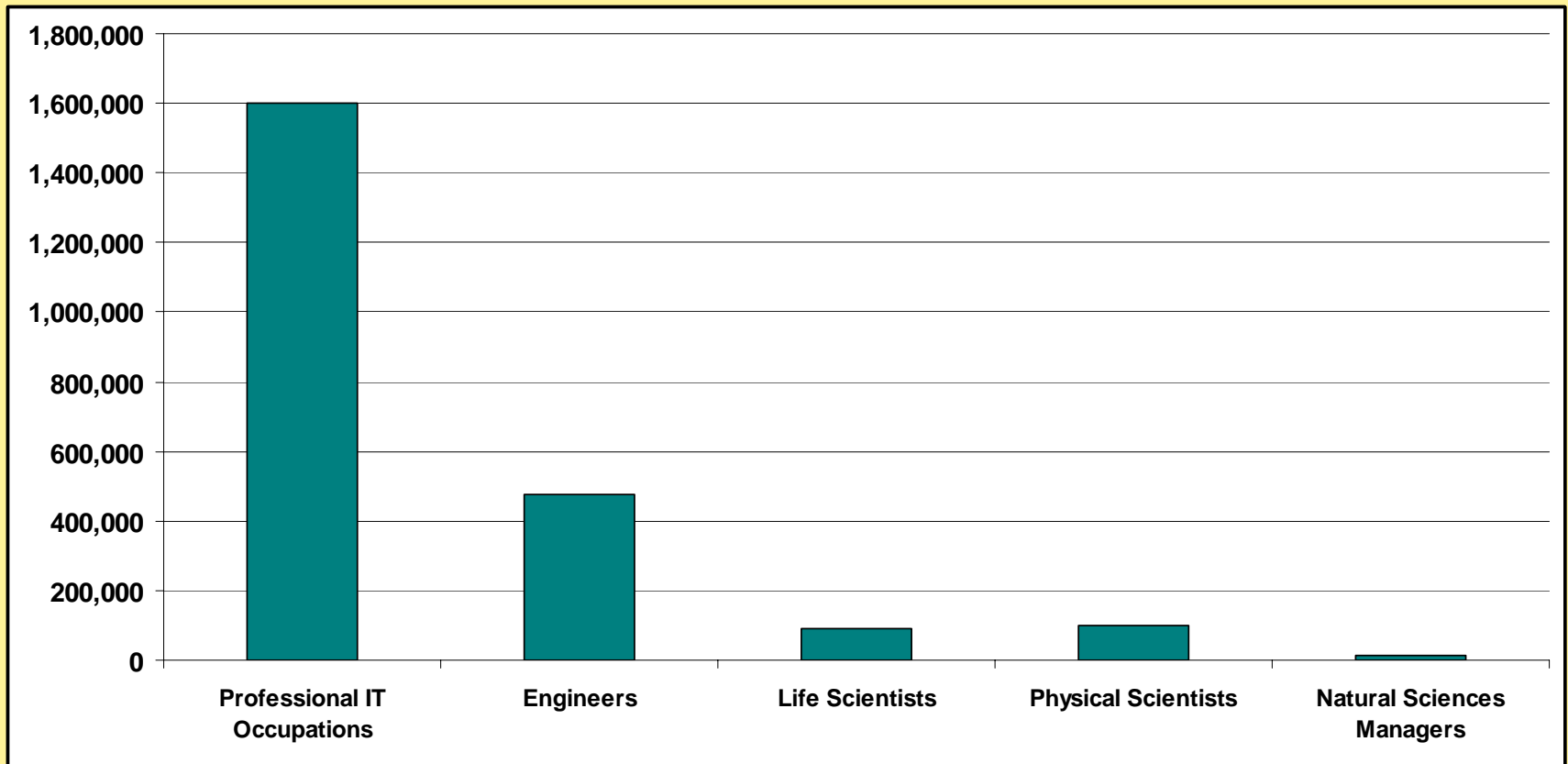- CS Dept Chairs - Please reach out to your Comp Engr Depts.

Instant Survey

- How many of you are from academic units that have more than "Computer Science" in title?
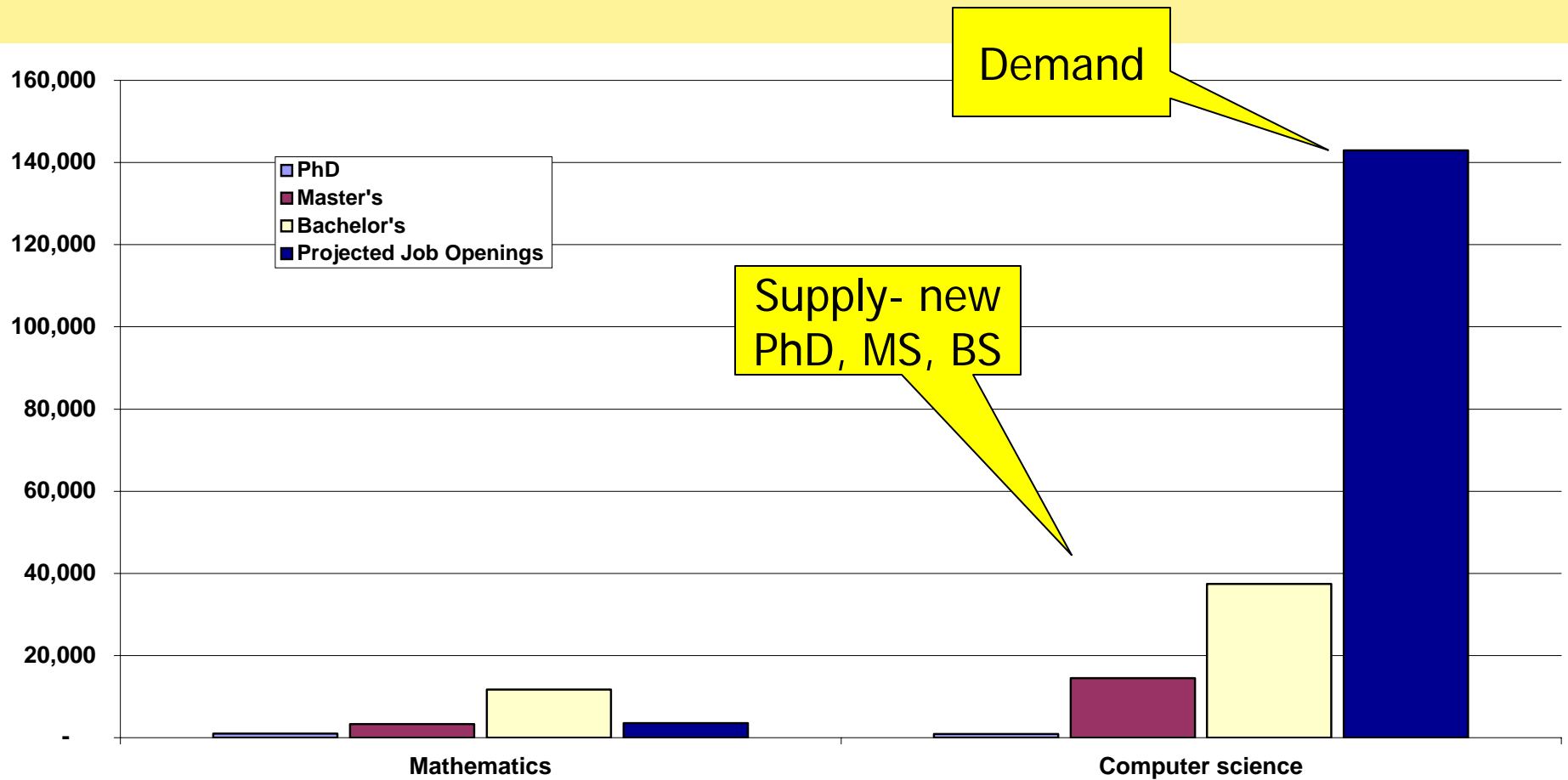 - (About half of the academics raised their hands)

CRA Role

- Help define the new world of Computing Research
  - Interdisciplinary
  - Use-motivated

- SPEAK WITH ONE VOICE

Good News - Projected Demand for IT Professionals

Total IT Job Openings 2002 to 2112 – New jobs plus replacements due to retirements - BLS
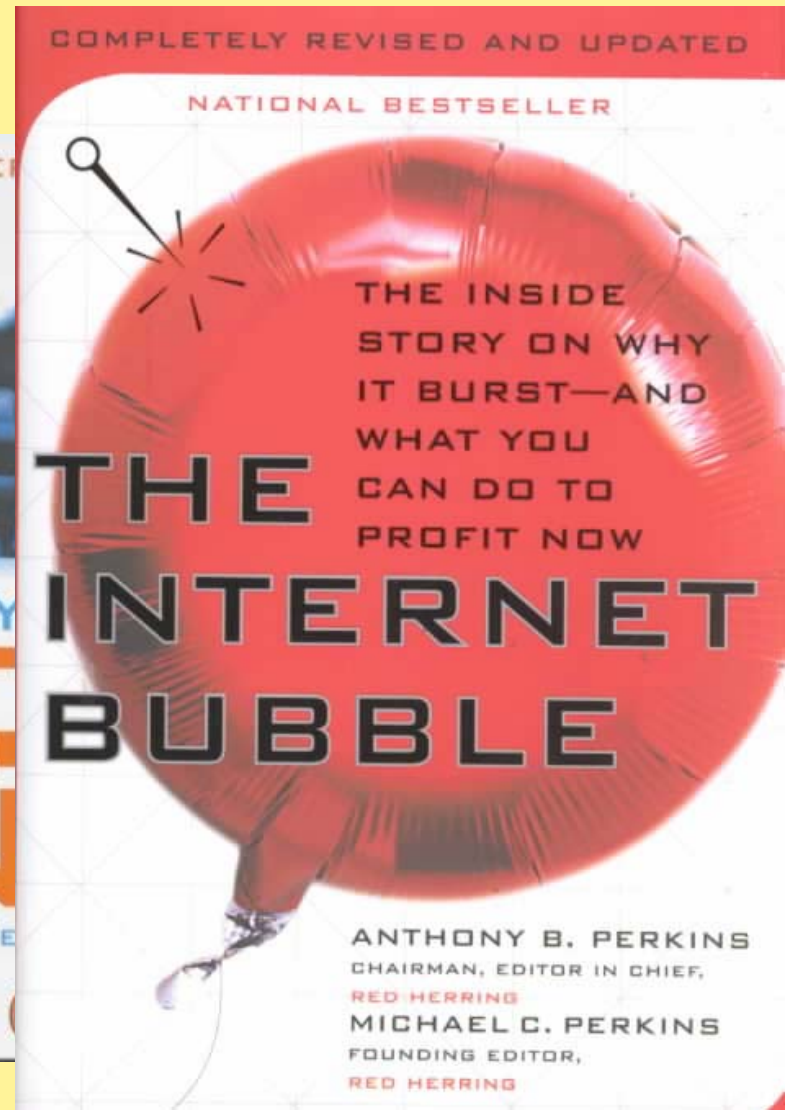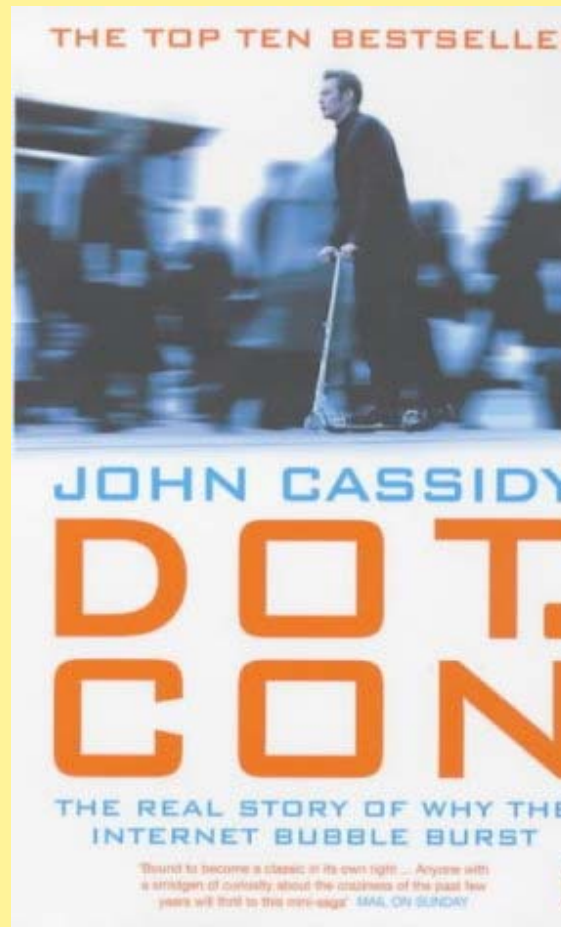
Bad News? Demand > Supply?

Yearly demand and supply of new grads; **unemployed workers not included**.   Source: Bureau of Labor Statistics

Bad News – A "Triple Whammy"

Bad News – A "Triple Whammy"

First the

Dot-Com

Bust

Then 9/11