

Panel on Federal Investment in Science and Technology and Its National Benefit

Dr. G. Wayne Clough
President's Council of Advisors
on Science and Technology
June 12, 2002

Panel Members

- Wayne Clough, chair, Georgia Tech
- M. Kathleen Behrens, R.S. Investments
- Erich Bloch, The Washington Advisory Group
- Raul J. Fernandez, Dimension Data
- Martha Gilliland, University of Missouri-Kansas City
- Walter E. Massey, Morehouse College
- Gordon E. Moore, Intel
- Luis M. Proenza, University of Akron
- George Scalise, Semiconductor Industry Association
- Charles M. Vest, MIT

Panel Workplan

Assigned Tasks

- Review the federal R&D portfolio to determine which programs should be expanded, which curtailed, and which maintained at the same level.
- Advise on technology transfer mechanisms to maximize the commercialization and benefit of federally funded research.

Panel Workplan

Schedule for Accomplishing Tasks

- July: Develop preliminary position on the Bayh-Dole Act and its benefits
- August: First assessment of federal investment in R&D and its national benefit relative to FY '04 budget
- October: Review of mechanisms for technology transfer/commercialization, including Bayh-Dole
- November: Final review of federal investment in R&D and its national benefit

Panel Workplan

Data Collection Methods

- Two RAND studies being developed:
 - Technology transfer
 - Portfolio of federal R&D investments
- Organizations providing expertise to RAND:
 - American Association for the Advancement of Science
 - Association of University Technology Managers
- Hearings to solicit input from industry, universities, federal agencies, and others

Panel Workplan

Experts Engaged

- David Mowery, UC Berkeley
- Marsha McNutt, Monterey Bay Aquarium Research Institute
- Jerry Thursby, Emory University
- Marie Thursby, Georgia Tech
- Jilda Garton, Georgia Tech

Activities to Date

- February 18: Conference call
- March 5: First meeting, 8:30-10 am before full PCAST meeting
- April 11: Hearing on Bayh-Dole, afternoon
 - Pharmaceutical Research and Manufacturers of America (PhRMA)
 - Biotechnology Industry Association (BIO)
 - Semiconductor Research Corporation (SRC)

Activities to Date (cont)

- May 9: Hearing on Bayh-Dole, morning
 - Association of University Technology Managers
 - U.S. Department of Commerce
 - Battelle Memorial Institute
 - NIH Technology Transfer Office
- May 9: Hearing on technology transfer, afternoon
 - IBM
 - American Chemical Society
 - Science Coalition
 - Council on Competitiveness

Activities to Date (cont)

- May 20: Conference call on Bayh-Dole
- June 13: Briefings on research activities of federal agencies:
 - U.S. Department of Defense
 - U.S. Department of Energy
 - National Science Foundation
 - National Aeronautic and Space Administration
 - U.S. Department of Commerce
 - U.S. Office of Management and Budget

Status Report on RAND Study on Technology Transfer

Luis Proenza

Status Report on RAND Study on Federal Investment in R&D

Erich Bloch

The Bayh-Dole Act

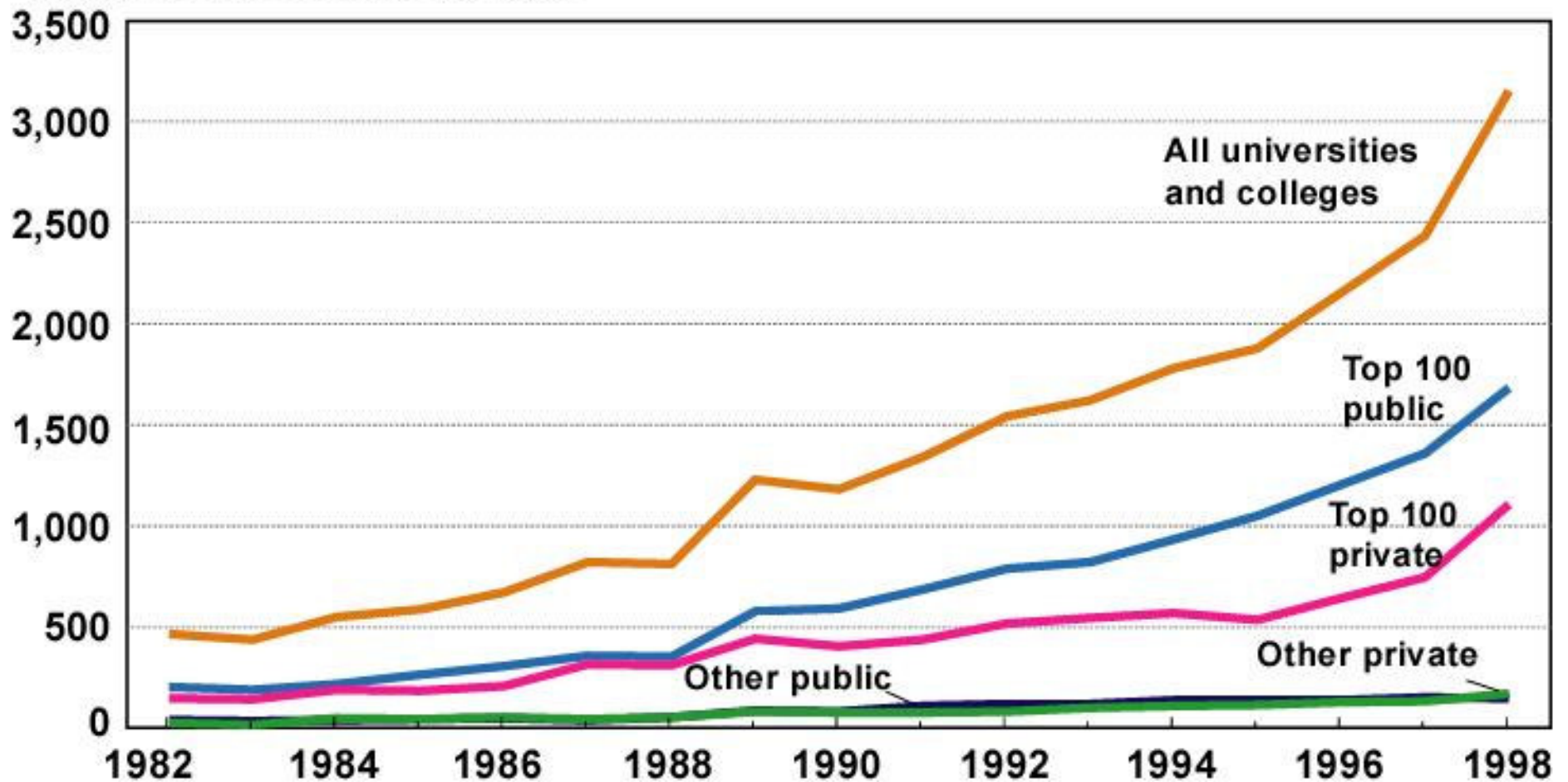
The most pertinent question to ask is:

In whose hands will the vestiture of primary rights to inventions serve to transfer the inventive technology most quickly to the public for its use and benefit?

In the United States, the answer has been the university-private sector partnership.

Howard W. Bremer
to NASULGC, Nov 11, 2001

Academic Patents Granted

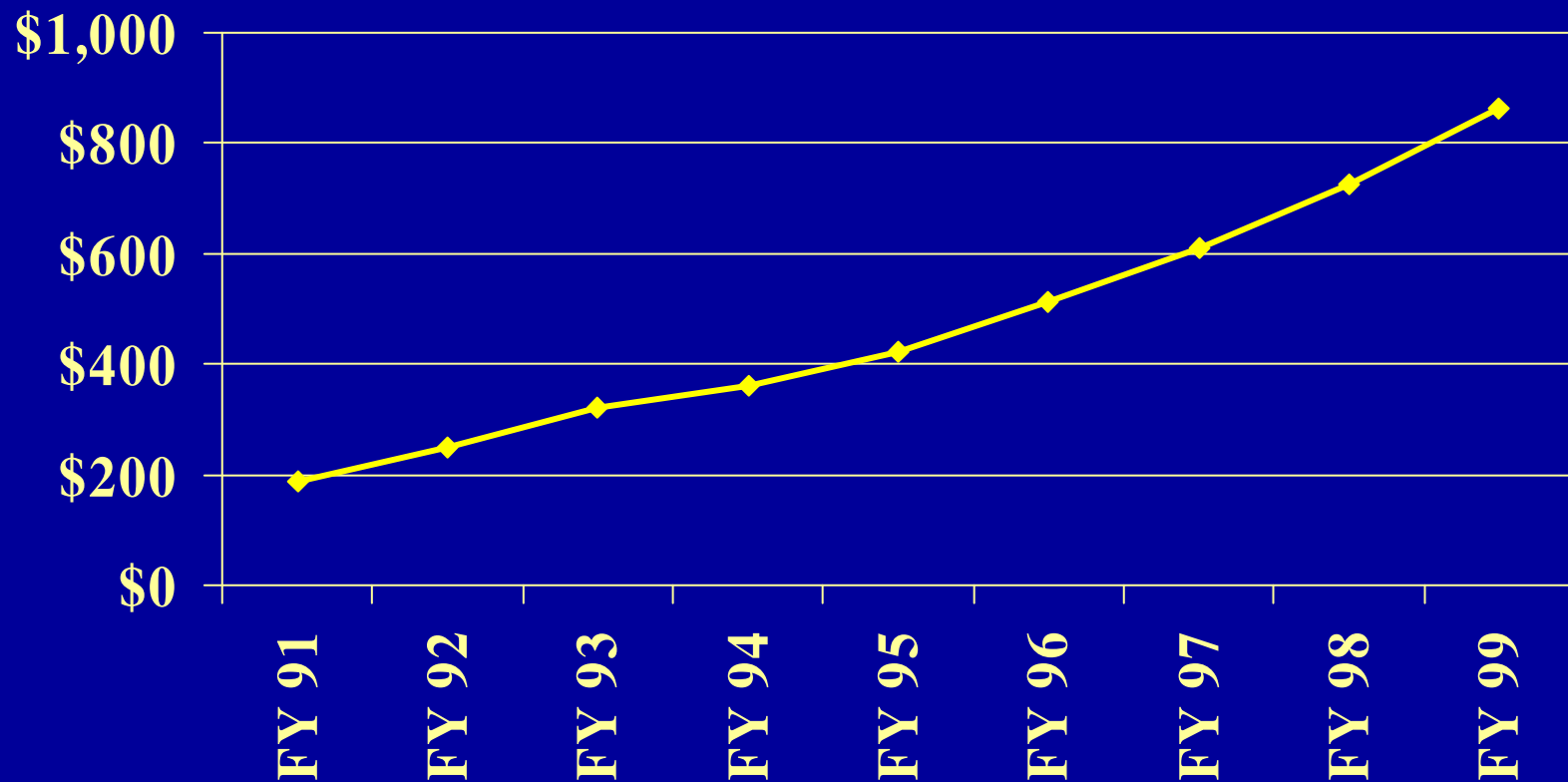


National Science Board: Science & Engineering Indicators 2000

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Adjusted Gross License Income

(in millions)



University Licensing, FY 2000

190 institutions reporting

- 3,764 U.S. patents issued
- 4,362 new licenses and options executed
- 66% of the new licenses to small businesses or start-up companies
- Over 450 new companies created to commercialize university research
- At least 347 new products introduced to the market

AUTM FY 2000 Survey

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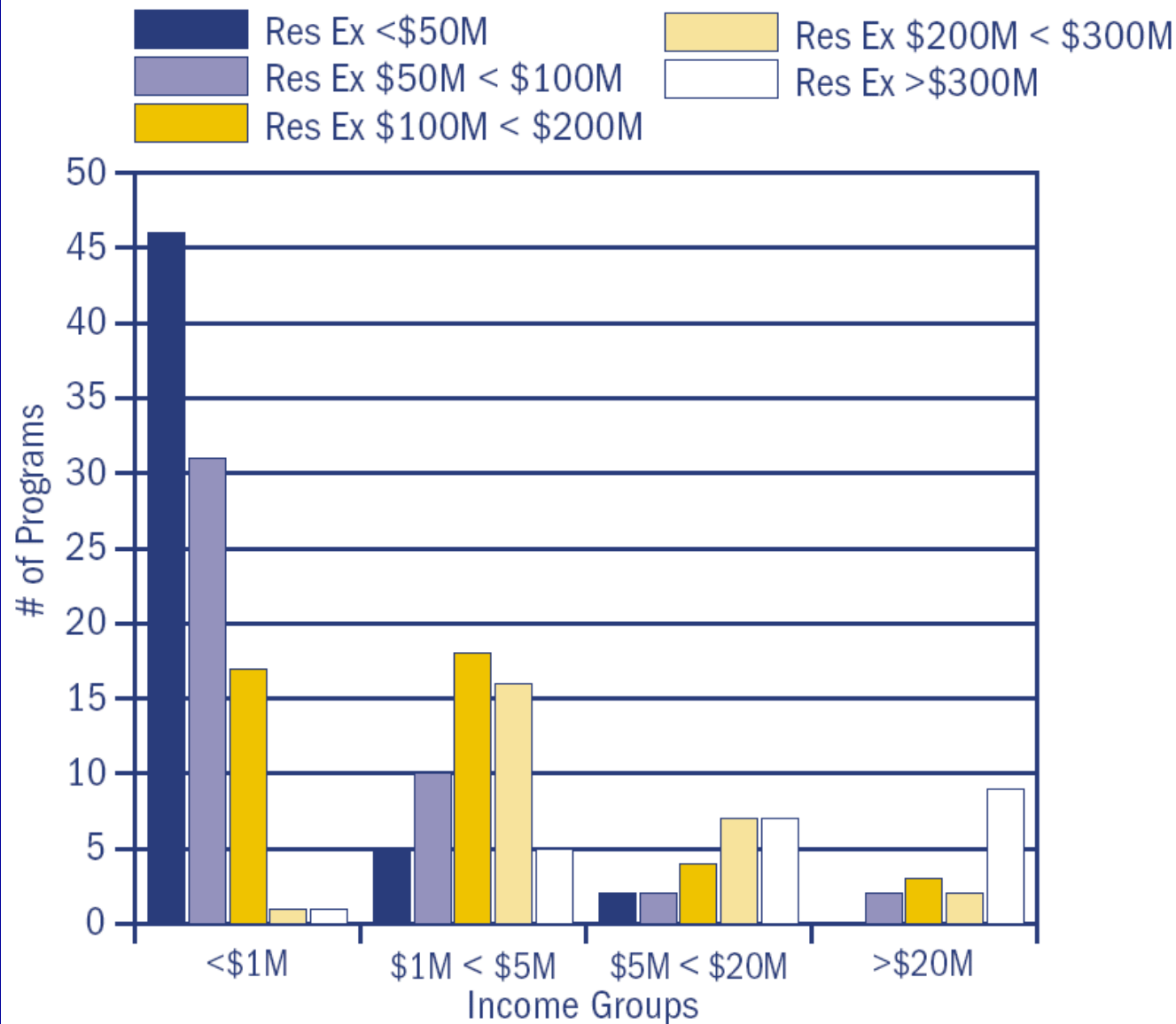
Licensing Revenues, FY 2000

190 institutions reporting

- \$29.5 billion in research expenditures
- \$1.26 billion* in adjusted gross income
- Half earned less than \$1 million
- 9% earned more than \$20 million

*** Expected to be higher than the trendline because of one-time payments (cash equity, patent-infringement suits, etc.).**

AUTM FY2000 Survey

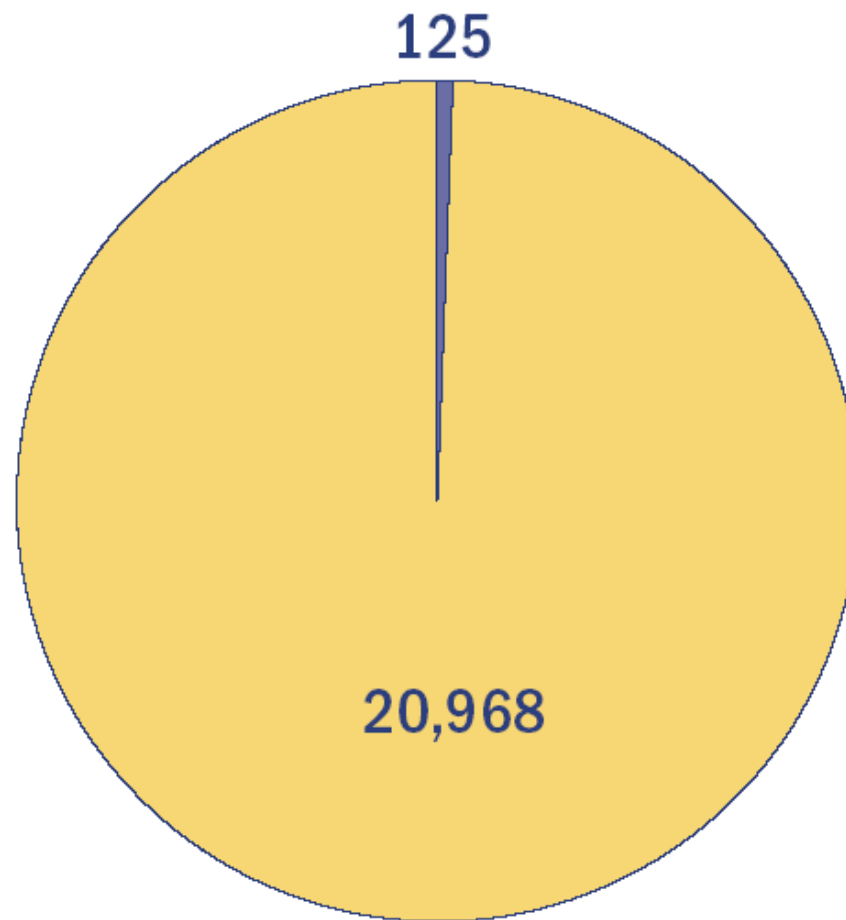


University
licensing
income
correlates
with research
expenditures.

AUTM
FY2000
Survey

Less than 1% of active licenses generate more than \$1 million in gross adjusted revenue:

■ # Active Licenses Generating > \$1M in FY 2000
■ # Other Active Licenses



AUTM
FY2000
Survey

Insights from the Hearings

Bayh-Dole works! If it is not broken, don't fix it.

Jon Soderstrom, Yale (AUTM)

I have not yet heard an industry representative single out Bayh-Dole as a specific problem.

Bruce Mehlman, Dept of Commerce

Any major change in the law may cause a reaction in the commercial community that could impede what is now a positive flow of new therapeutic products and procedures to market.

Mark Rohrbaugh, NIH

Insights from the Hearings

The Bayh-Dole Act has been a very positive tool in commercialization... It establishes ownership of IP with universities and they are motivated to work with industry to commercialize. The Bayh-Dole Act requires them to do it, and over time they have become very good at it.

David Beier, PhRMA

Insights from the Hearings

The success of Bayh-Dole has caused other issues to emerge:

- Conflicts of interest
- Recoupment
- Exclusive vs non-exclusive licenses; development and use of research tools
- Uneven implementation
- Projects that involve multiple collaborations and significant private investment

Panel to Gather More Data

- Hearings to gather input from
 - Small business
 - Venture capitalists
 - Congressional staff
- Results from the RAND studies