



The Economic Value of Academic Research and Development in Wisconsin



GE Healthcare, Wauwatosa

Academic R&D: It's a billion-dollar industry!

- **\$1.067 billion** = Science and engineering research in Wisconsin, all institutions, fiscal 2007, as reported by the National Science Foundation

How that breaks down:

- **\$840.7 million** = UW-Madison
- **\$172 million** = Private academic institutions
- **\$54 million** = Other UW System campuses

Academic R&D: It's a billion-dollar industry!

Beyond core S&E figures, there are other sources of R&D dollars

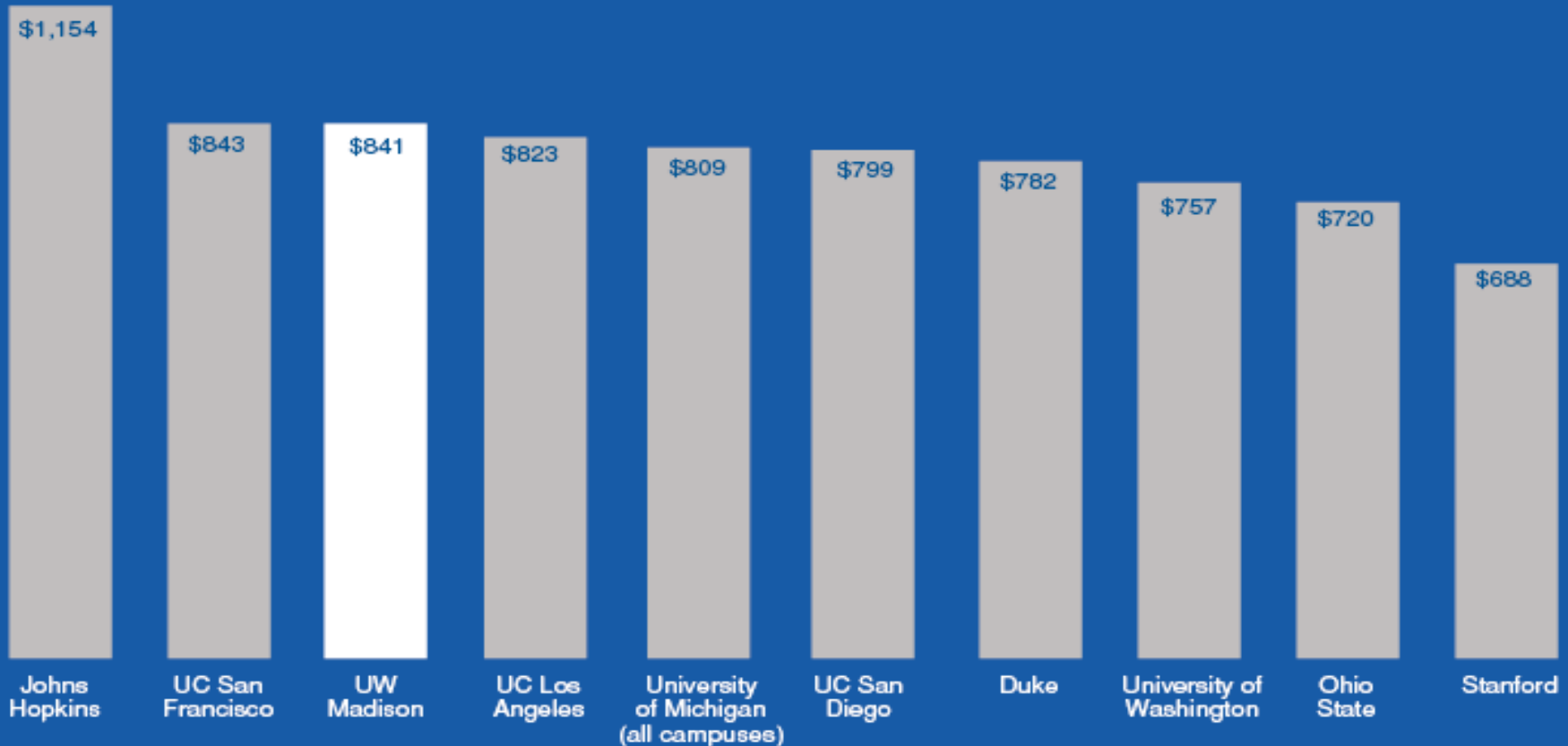
- **\$72 million** = Non-science and engineering research (business, education, humanities) at UW-Madison
- **\$42 million** = Total S&E research at Marshfield Clinic and Blood Center of Wisconsin, two institutions outside the NSF definition of 'academic institution'

Bottom line

- **\$1.15 billion** -- Total academic R&D, S&E and non S&E, counting Marshfield and BCW. Wisconsin is 13th among the states even if only NSF figures are used!

Top 10 Institutions in Science and Engineering Fields

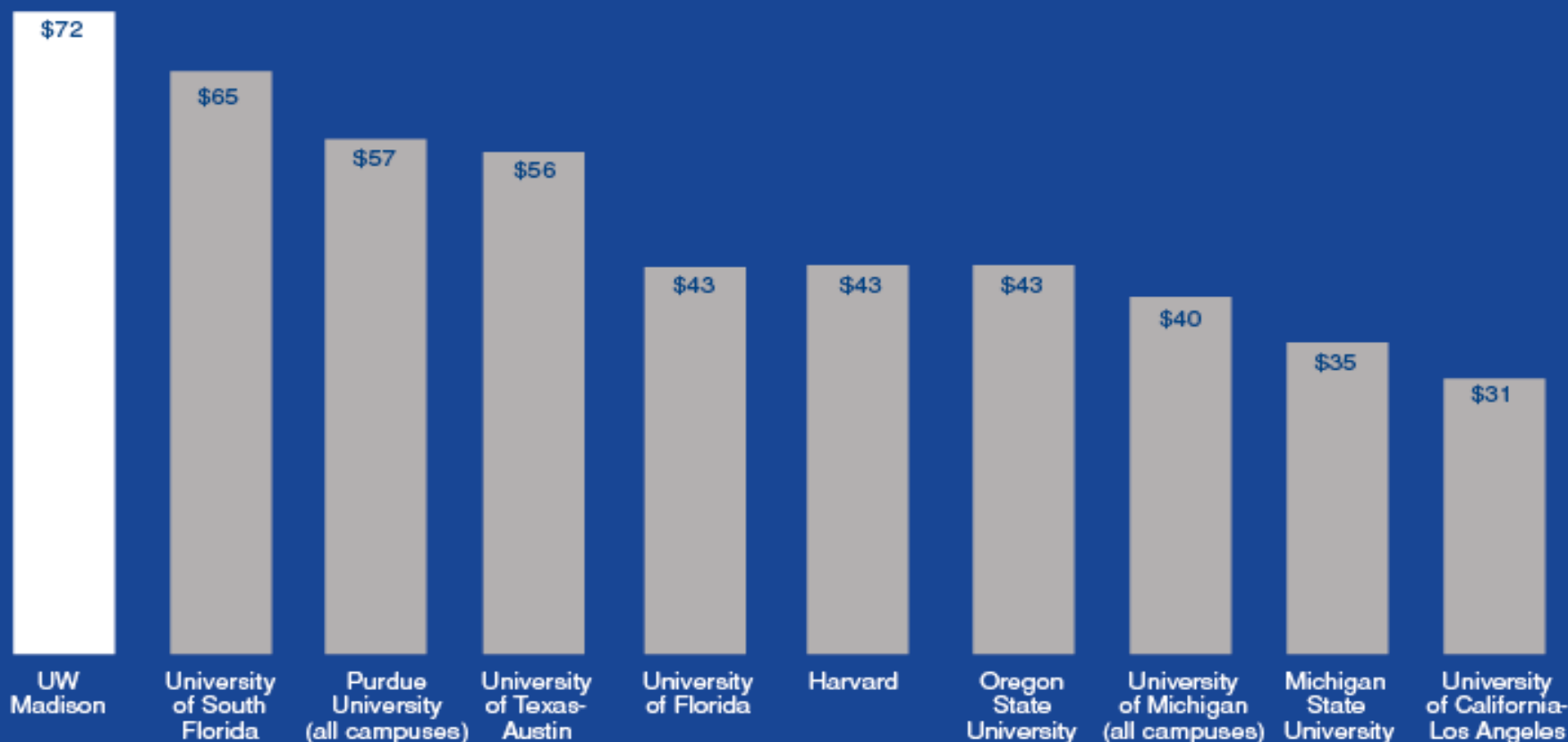
Millions of current dollars



Total Science and Engineering Fields: \$49.4 billion at 672 institutions
Source: National Science Foundation

Top 10 Institutions in Non-Science and Engineering Fields

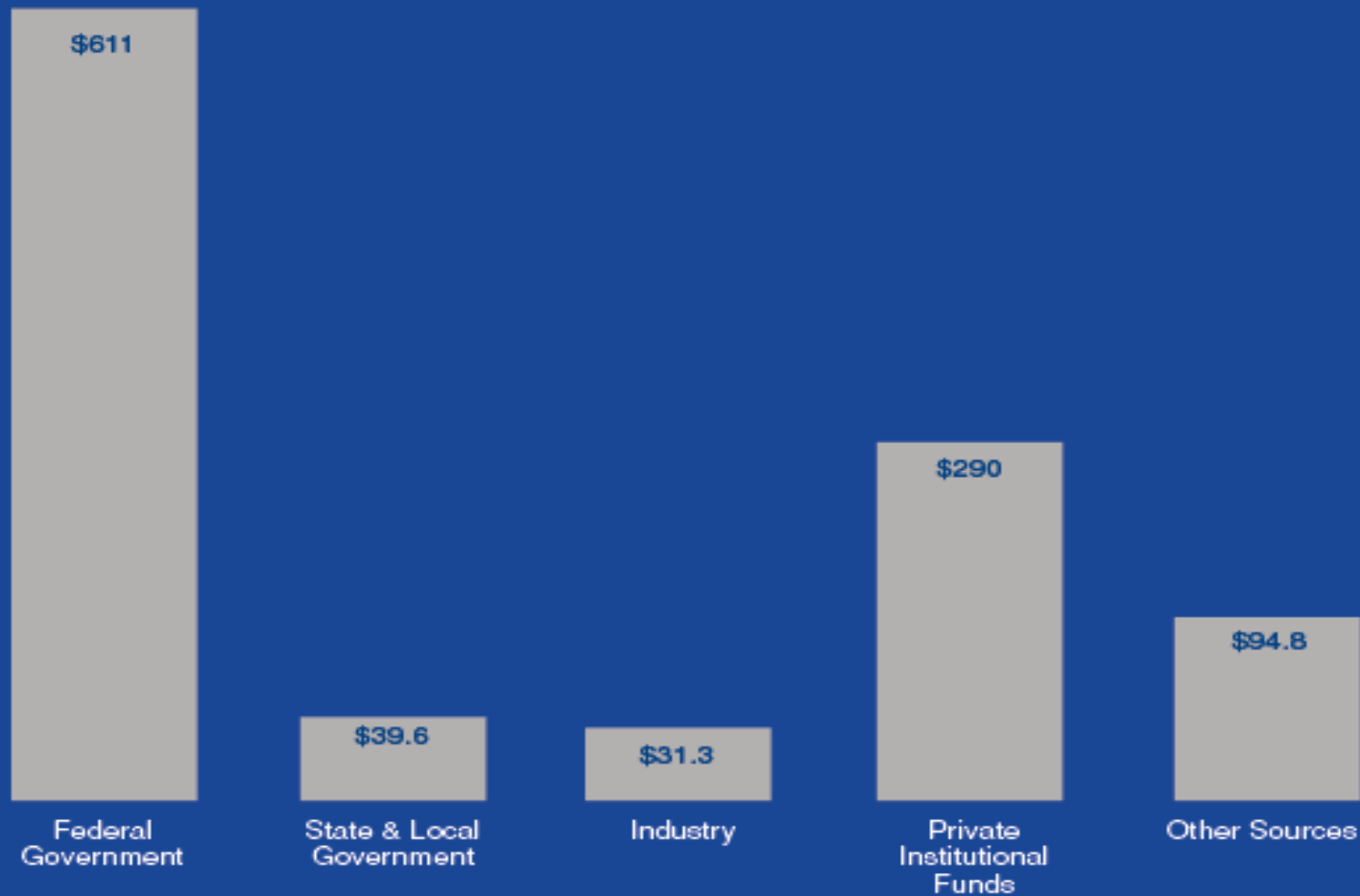
Millions of current dollars



Total Non-Science and Engineering Fields: \$2.037 billion
Source: National Science Foundation

Sources of science and engineering academic R&D Spending in Wisconsin

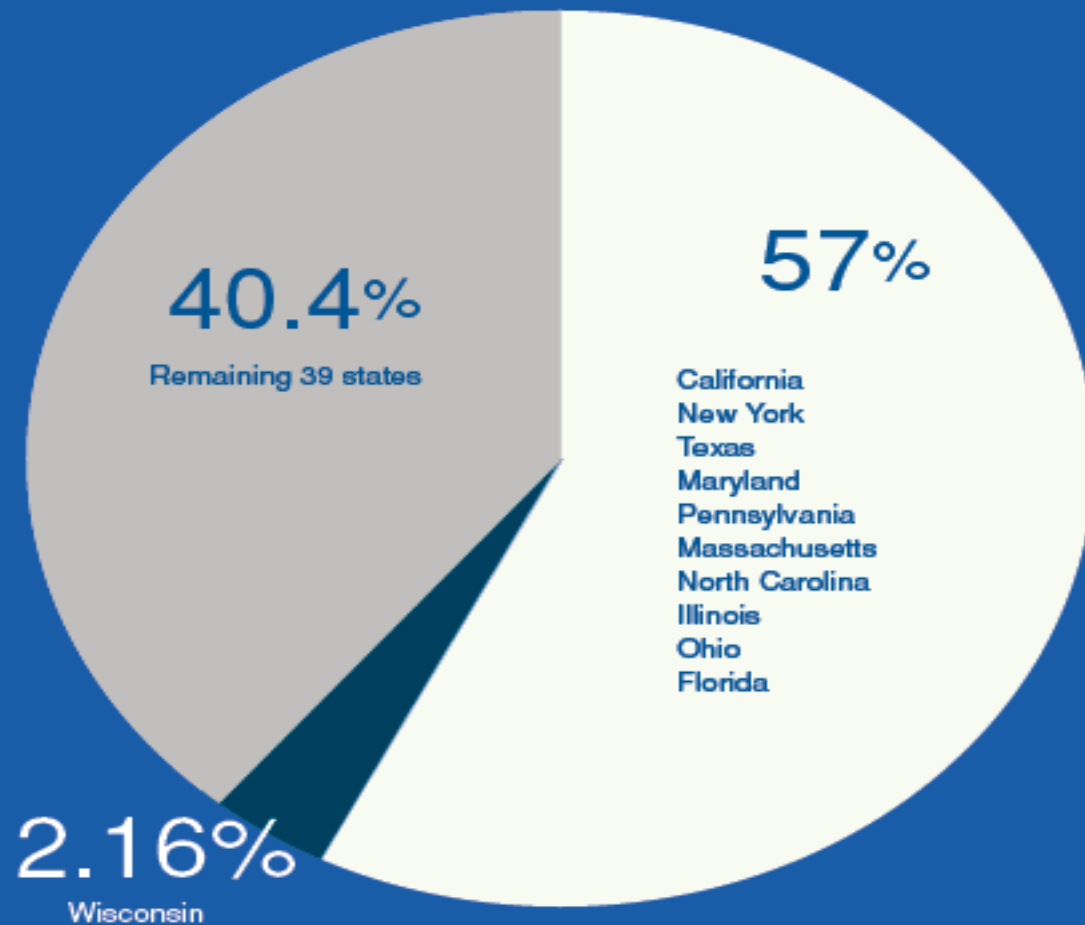
Millions of dollars, rounded figures



Total: \$1,066,688

Source: National Science Foundation

Top 10 States in terms of Academic R&D Spending in the United States



“The result of Bayh-Dole is that research at universities has been more fully transferred for the public’s benefit.”

- Howard Bremer, Council Emeritus, WARF

JW-Madison Microbial Sciences



Academic R&D across The UW System



UW-Milwaukee
UW-La Crosse
UW-Stevens Point
UW-Green Bay
UW-Oshkosh
UW-Eau Claire
UW-Stout
UW-River Falls
UW-Superior
UW-Parkside
UW-Whitewater
UW-Platteville

UW SYSTEM OVERVIEW

- Most of the UW System's academic R&D is clustered in Madison, which is one of the nation's oldest and largest research universities
- However, **\$54 million** in academic R&D was conducted in other UW System schools in 2007, according to the NSF
- Lion's share of that is at UW-Milwaukee, but centers of excellence are emerging at 11 other campuses in life sciences, materials sciences, nanotechnology, biofuels and more
- More could be done if professors had "release time."

OTHER SOURCES OF ACADEMIC R&D

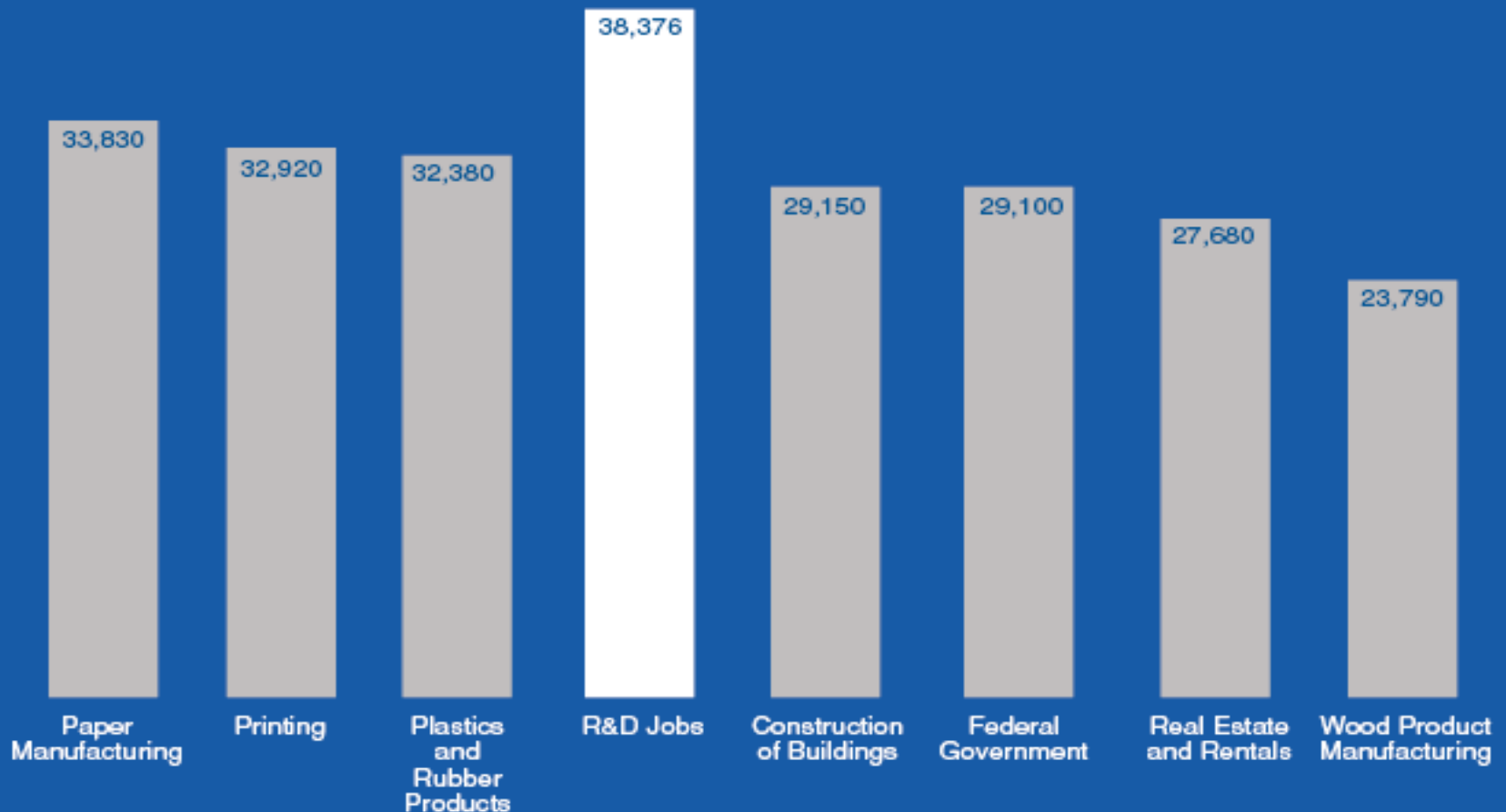
- **\$172 million** = Research spending by private academic institutions, such as the Medical College of Wisconsin, Marquette University, the Milwaukee School of Engineering and Lawrence University
- **\$25 million** = Research and development at the Marshfield Clinic, which tends to collaborate with academic institutions. The Wisconsin Genomics Initiative is a prime example
- **\$17 million** = R&D at the Blood Center of Wisconsin's Blood Research Institute, which tends to collaborate with the Medical College of Wisconsin.

WISCONSIN'S ACADEMIC R&D PRODUCES JOBS


- 36 direct and indirect jobs per \$1 million of science & engineering research
- That's the multiplier use by the U.S. Department of Commerce, Bureau of Economic Analysis, to calculate the economic impact of academic R&D
- In Wisconsin, that translates to 38,376 jobs!

Academic R&D jobs compared to other employment sectors*

(In 1,000s of people)



*Estimates based on U.S. Commerce Department multiplier of 36 jobs created for every \$1 million in academic R&D spending.



"The driving force of economic growth is investment in human capital – skills and ideas – rather than investment in machines and buildings."

- Researcher Steve Dorwick

WISCONSIN'S DECLINING HIGHER EDUCATION EFFORT


- In the past decade, state appropriations as a percentage of the total UW System budget have declined from 33.75 percent (1997-98) to 24.1 percent (2006-07)
- Actual state spending on the UW rose from \$880 million to \$1.04 billion during that same time period, or about 1.5 percent per year on average
- After experiencing a decline from \$7,131 to \$5,957 in per FTE student public higher education appropriations from FY 2002 to FY 2006, Wisconsin stabilized to \$6,176 in FY 2007. Still, the five-year comparison represents a reduction of 13.4 percent.

WISCONSIN'S DECLINING HIGHER EDUCATION EFFORT

- Wisconsin ranked 29th in FTE support in fiscal 2007, behind chief tech rivals such as California, North Carolina and Texas
- New Mexico is an example of a state moving in the opposite direction. Its FTE spending has climbed to 3rd among the 50 states since 2002. The strategy appears to be working!
- In the 2008 Kauffman Foundation 'New Economy' index, New Mexico ranked first in non-industry investment in R&D, and in the top 10 in high-tech jobs, number of scientists and engineers, venture capital and technology in schools

RECOMMENDATIONS

- Protect public support for the UW System in the 2009-2011 state budget bill, especially that which supports R&D.
- Encourage more UW System professors to engage in R&D by removing impediments to commercialization and paying for 'release time'
- Continue to invest in capital projects that serve to attract outside R&D dollars
- Support overall R&D commercial culture through tax credits and more to encourage market 'pull' versus technology push

A photograph of a man and a woman in blue shirts looking at something together outdoors. The man is on the left, looking down and to the right. The woman is on the right, looking down and to the left, smiling. They are both wearing blue shirts. The background shows a brick building and green foliage. A semi-transparent text box is overlaid on the top right of the image.

“If the slide in higher education funding effort continues, the academic R&D infrastructure in Wisconsin could deteriorate.”

- Wisconsin Technology Council

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