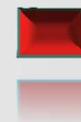


THE IMPORTANCE OF RESEARCH UNIVERSITIES

Phyllis E. Johnson – Vice President for Research and
Economic Development, University of North Dakota

Kelly A. Rusch – Vice President for Research and
Creative Activity, North Dakota State University





[America's]
“research
universities
have emerged
as a major
national
asset—
perhaps even
its most potent
one.”

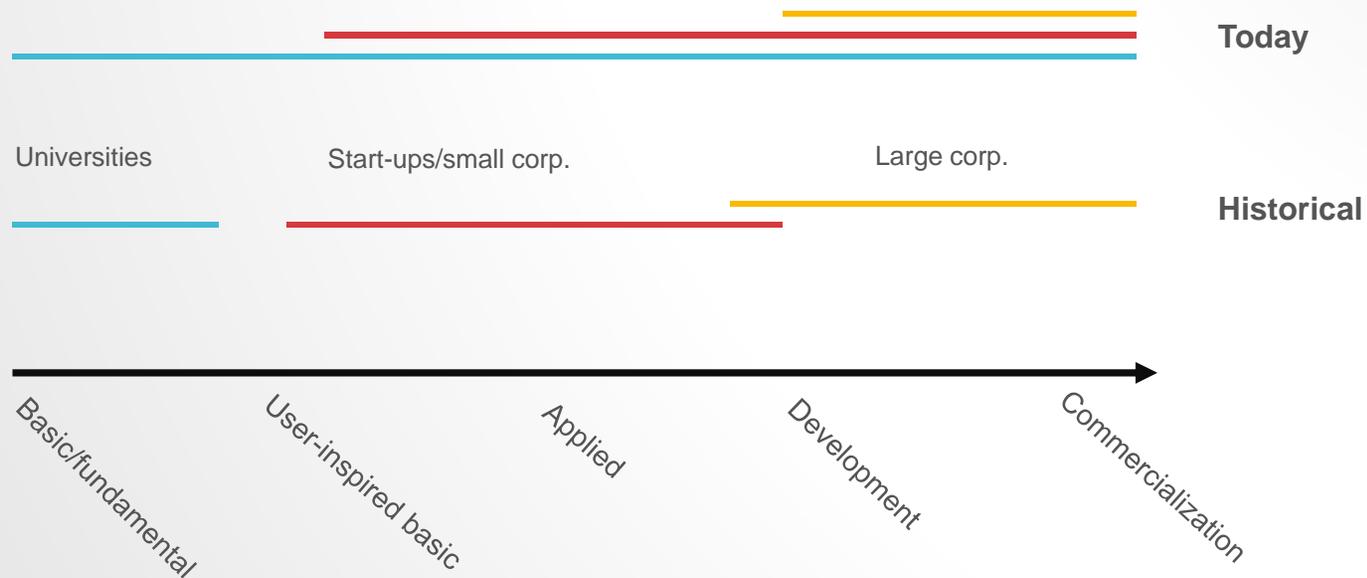
U.S. Competitiveness and Research Universities

“ Research is our secret weapon, our edge in an increasingly competitive world economy. Our universities, especially our 200 research universities, along with our national laboratories and private-sector research, constitute the greatest force for innovation in the world. Without this research, the U.S. could not possibly produce nearly 25 percent of all the wealth in the world each year.....”

Sen. Lamar Alexander and Hunter Rawlings III - December 16, 2012 09:19 PM EST - Politico



Research is Key to Innovation and National Security



Research and Development Maturation

Basic research creates new knowledge – if you are not producing knowledge, you are importing knowledge

University Classification

[Carnegie Foundation for the Advancement of Teaching/Carnegie Commission on Higher Education]

- Basic classification
 - Associate
 - Baccalaureate
 - Master's
 - Tribal Colleges
 - **Doctoral [doctoral, high research, very high research]**

Each classification of university is of critical importance to a state

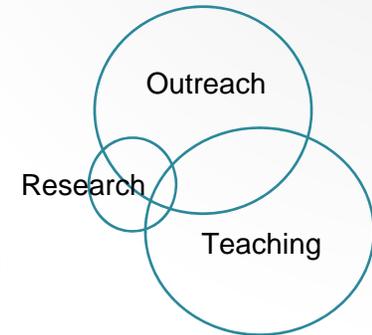
Each classification of university has a mission-niche



Research Universities

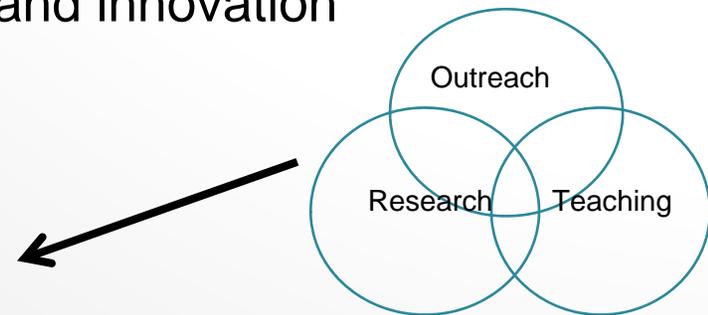
what makes them different – core business

- Universities and Colleges
 - Transfer of knowledge and technology and innovation
- Research Universities
 - **Creation/discovery** of new knowledge and technology and innovation – as a main mission
 - Transfer of knowledge and technology and innovation



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Particularly through graduate education



Today's Research Universities

[students are still the largest product]

- Creators of an environment for connected learning amongst undergraduates, graduate students and faculty
- Maximizing quality of undergraduate education by drawing on the resources of research increases retention and graduation
- Graduate students exposed to leading edge research

Today's workforce world – faster, more complex, greater uncertainty, higher risk, greater interdisciplinary work



Research is a unifier to provide value-added skills to graduates in addition to innovative solutions to today's grand challenges

Carnegie Classification - Doctoral

- Doctoral
- Research-high activity



- Research-very high activity



- Data used to determine classification category
 - ✓ R&D expenditures in S&E
 - ✓ S&E research staff (postdoctoral appointees and other non-faculty research staff with doctorates)
 - ✓ R&D expenditures in non-S&E fields
 - ✓ Doctoral conferrals in humanities fields, in social science fields, in STEM (science, technology, engineering, and mathematics) fields, and in other fields (e.g., business, education, public policy, social work).

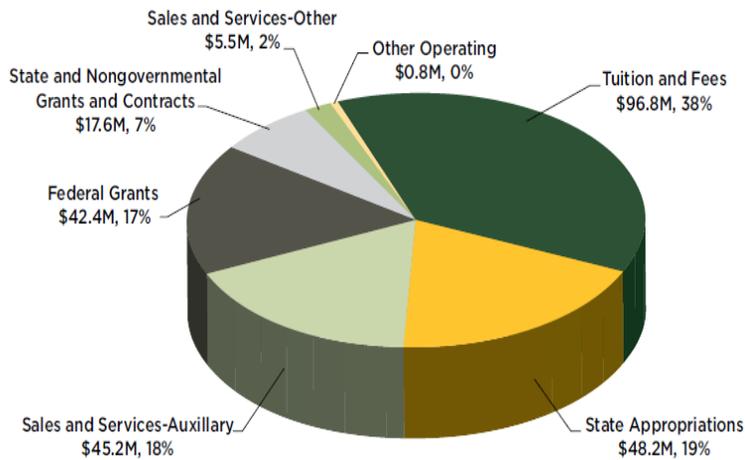
All 3 categories award ≥ 20 doctoral degrees/yr (not including professional degrees)

What is Different at Research Universities?

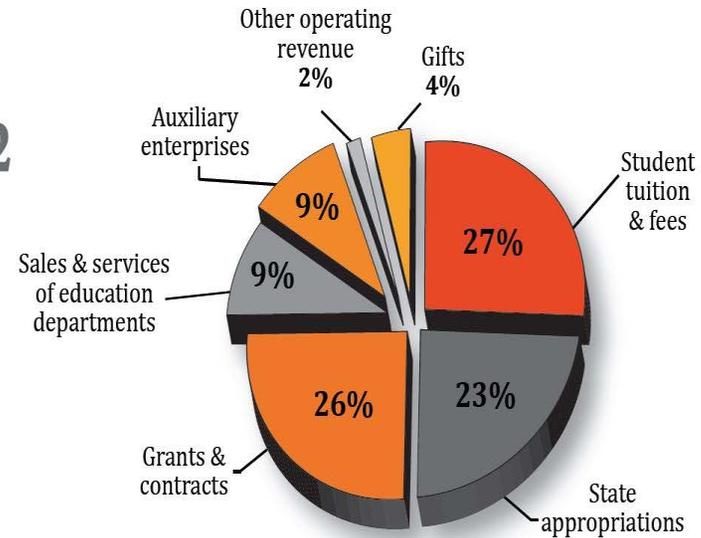
- **Research administration** is a significant institutional activity and responsibility
 - Large sponsored program office
 - Large grants and contracts office
 - Large research integrity and compliance office
 - IP, technology transfer, commercialization office
 - Additional complexities due to export control and increasing regulatory mandates
 - Large, physical infrastructure to support basic and applied research and development
- Faculty appointments are split across research, teaching and service

Research is an Important Part of the University Budget [FY12]

NORTH DAKOTA STATE UNIVERSITY
Operating Revenues FY12 - \$256.7M



2012



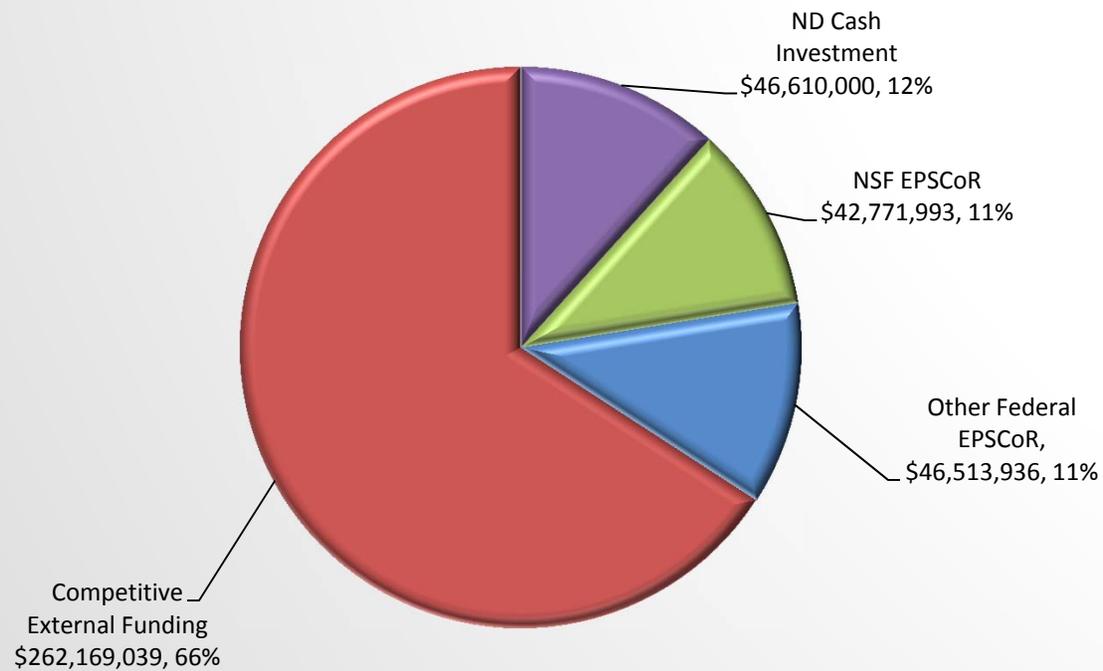
UND

	UND	NDSU
NSF HERD Expenditures	\$89.2M	\$135.5M
Doctoral Degrees	121	95
Federal F&A Rate	38%	45%

National average is 52%

North Dakota EPSCoR

[1986-2013 – a true success story for the State]



JOINT MTG. OF THE INTERIM HIGHER ED. FUNDING/JUDICIARY CMTES.

THE EXPERIMENTAL PROGRAM TO STIMULATE COMPETITIVE RESEARCH

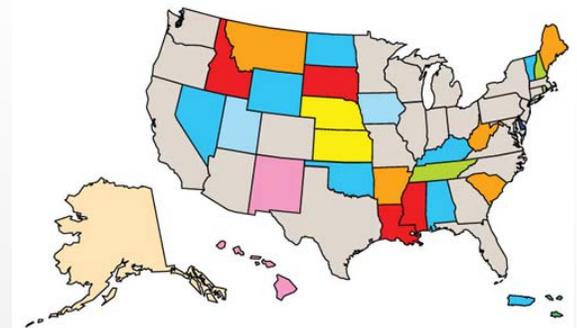
Committee to Evaluate the Experimental Program to Stimulate Competitive Research (EPSCoR) and Similar Federal Agency Programs

Committee on Science, Engineering, and Public Policy
Policy and Global Affairs

NATIONAL ACADEMY OF SCIENCES,
NATIONAL ACADEMY OF ENGINEERING, AND
INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

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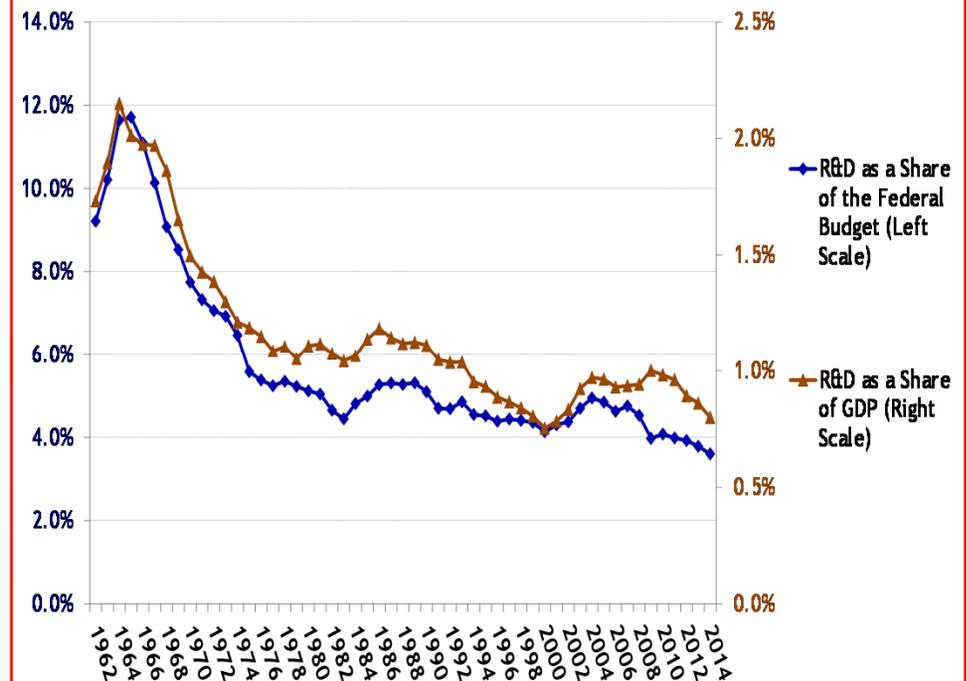


University Research Landscape

- Increasingly demanding environment for accountability and regulatory compliance
- Increasing cost of doing business
 - ✓ Rate of inflation in research costs > overall inflation
- Stagnant or declining federal R&D funding
- Increasing global competition
- Quickly changing demographics
- Highly mobile personnel/competition in a national market

Federal R&D in the Budget and the Economy

Outlays as share of total, 1962 - 2014



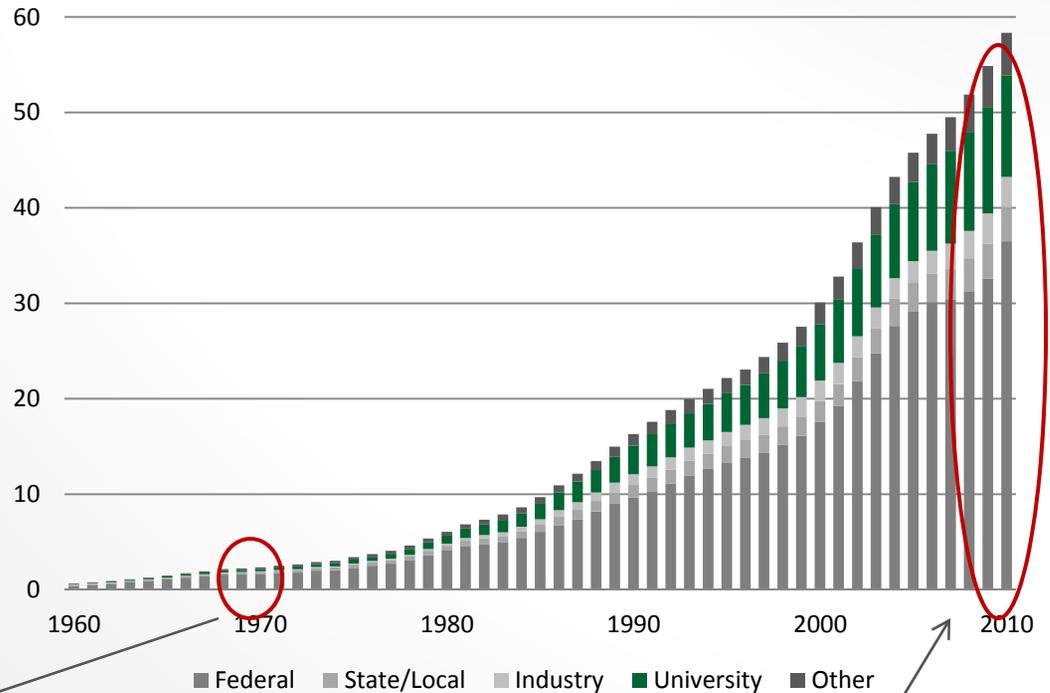
Source: *Budget of the United States Government, FY 2014*. FY 2013 data do not reflect sequestration. FY 2014 is the President's request.
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Support for University Research

• Research costs are **not** fully covered by sponsored grants and contracts

R&D at Universities by Funding Source
(in billions, not adjusted for inflation)



University R&D provided by:
Federal gov.t - 73%
Industry - <3%
University - <10%

University R&D provided by:
Federal gov.t - 60%
Industry - 6%
University - 20%

Support for University Research

- Sponsored grants and contracts components
 - ✓ Direct costs: costs that can be easily tied to the execution of a project
 - ✓ Indirect costs [facilities and administrative]: costs that cannot easily be billed to a project [e.g., electricity, equipment, administrative efforts, space costs, compliance, custodians, EH&S, payroll, etc.]
 - These dollars are critical to research enterprises, but do not fully cover research – institutions must subsidize this

Status of ND Research Universities

- Decreasing federal funding [national]
- Generally low/no overhead with state research funding, but marginal cost of research is still there [state]
- Low F&A rates, resulting in additional institutional subsidy of research [national and state]
- Insufficient bench strength in the faculty – lack of critical mass [state]
 - ✓ However, high quality faculty
- Inadequate infrastructure support (electronic research administration, compliance software, contemporary research facilities, etc.) [state]



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Status of ND Research Universities

- Recognition of research mission in state appropriated budget
- North Dakota is a low populous state; UND and NDSU are small research universities – maximize leveraging and collaboration where it makes sense to add to critical mass
- Create thriving ecosystems of basic research through commercialization that interact seamlessly with external partners



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THANK YOU