Institutional Metrics 2020

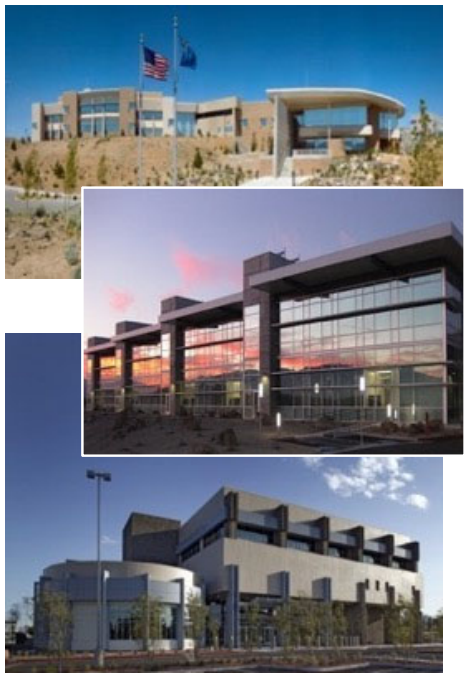
Presentation to the Nevada System of Higher Education Board of Regents

June 2020

Kumud Acharya, Ph.D
Interim President

DRI
Desert Research Institute
Scientific research and solutions for a changing planet

Who We Are



- **One** of **Eight** institutions within the Nevada System of Higher Education
- **Two** main campuses in Las Vegas and Reno
- Over **60 years** as environmental research and discovery
- More than **400** scientists, engineers, students, and support staff
- **~100** PhDs in more than **40** disciplines
- **$35M** in sponsored research grants and contracts annually

Scientific research and solutions for a changing planet.

Local, Regional, and International Research Impact






Nevada's Higher Education & Research Strategic Goals

- *DRI contributes to raising the profile of research across Nevada.*
- *DRI faculty and staff are leaders in research and science communication.*

Co-develop solutions to the critical issues facing 21st century Nevada and raise the overall research profile

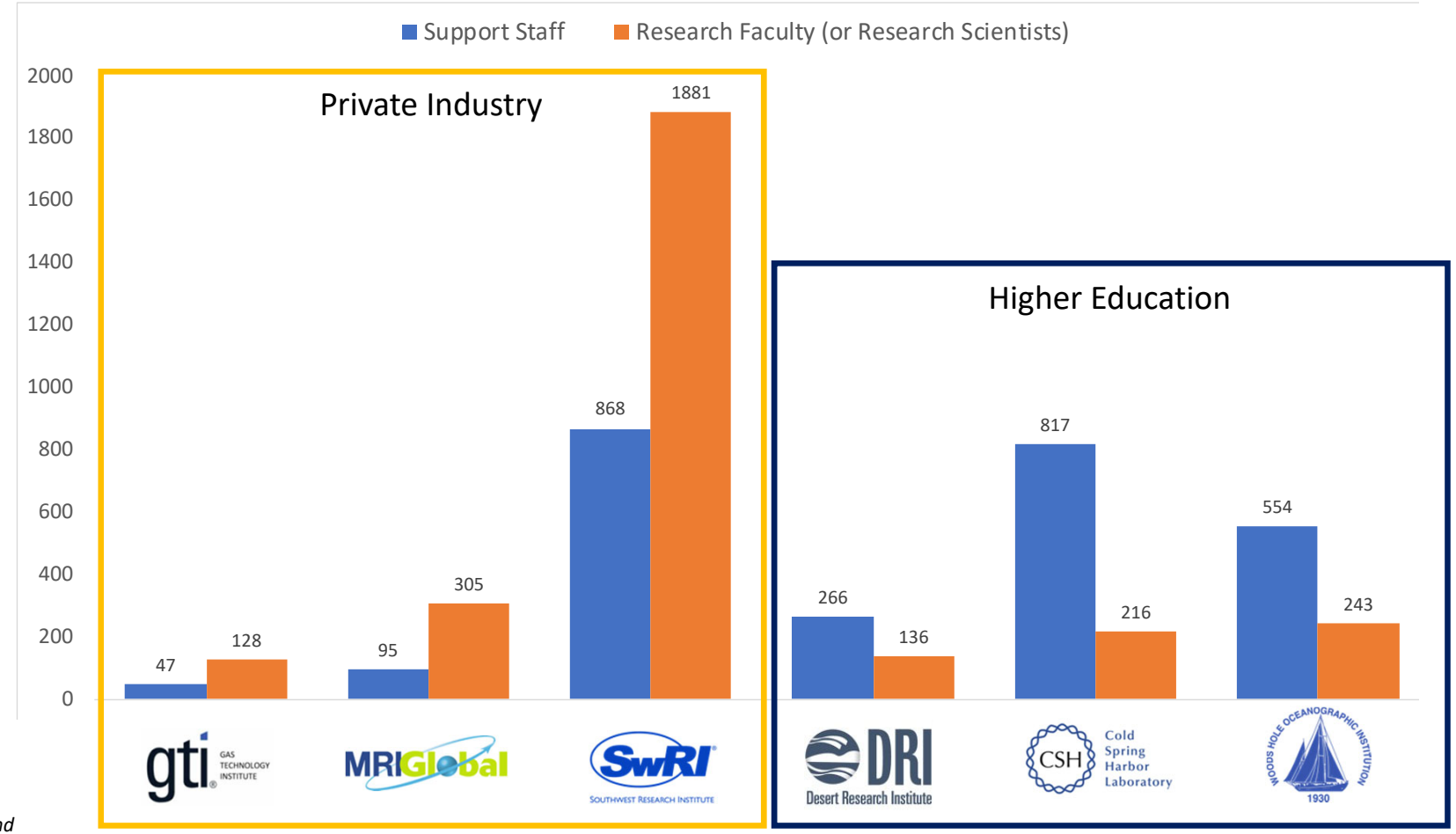
Ranked in the Top 10% of Research Institutions in the US

Federally Financed Research & Development (R&D) expenditures in the Geosciences, Atmospheric Sciences, and Ocean Sciences at 379 Institutions across the U.S.

Institution	Rank	R&D Expenditures (Millions)
U. Colorado, Boulder	1	$132.8
Woods Hole Oceanographic Institution	2	$110.7
Arizona State U.	9	$52.4
Massachusetts Institute of Technology	20	$27.7
Desert Research Institute	**26**	**$17.6**
Georgia Institute of Technology	52	$8.3
U. Utah	59	$7.2
U. Nevada, Reno	63	$6.9
U. California, Davis	65	$6.5
U. Nevada, Las Vegas	112	$2.5

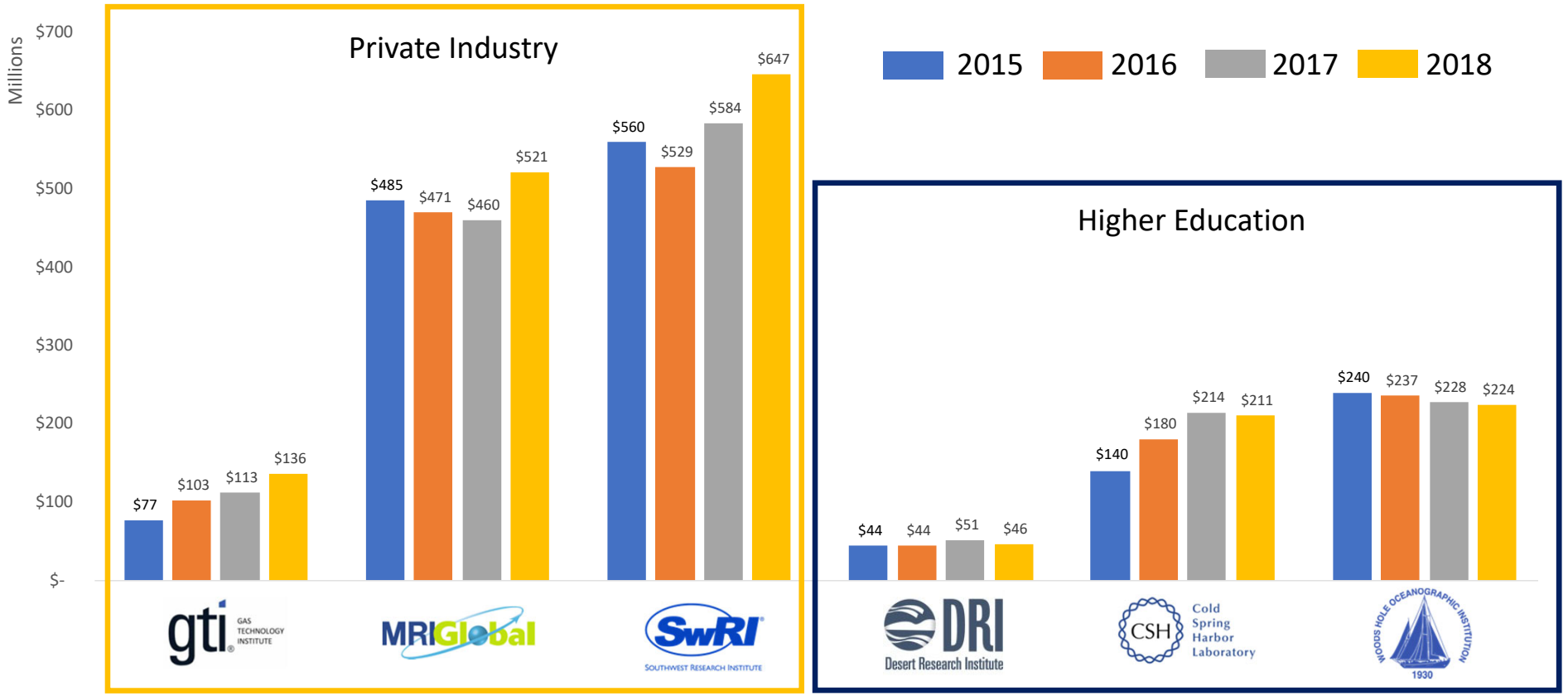
SOURCE: NSF HERD Survey (FY18)

DRI Peer Headcount Comparison (2018)



Sources: NSF HERD Survey (FY18) and publicly available annual report data.

DRI Peer Total Revenue Trend



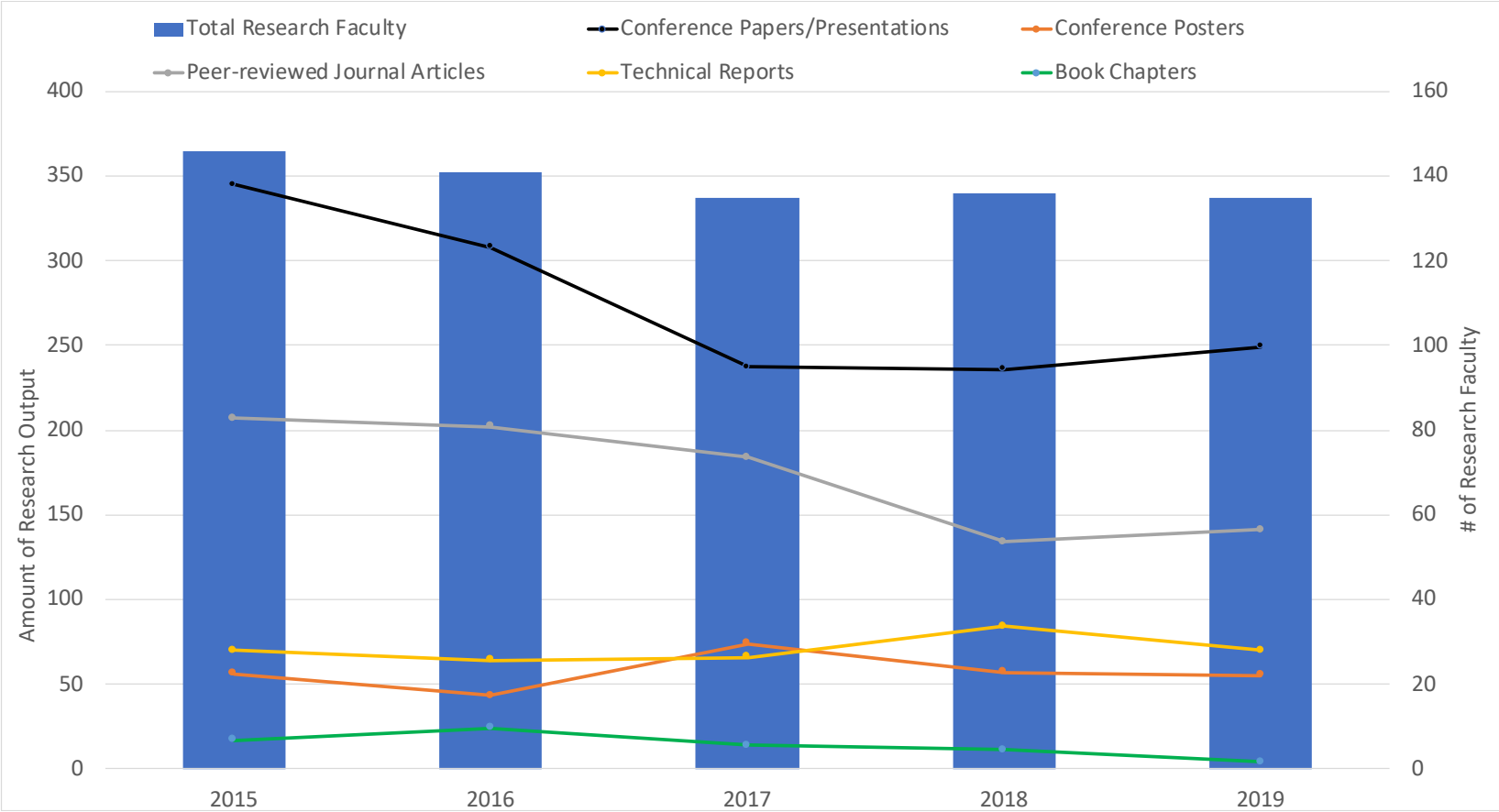
Sources: NSF HERD Survey (FY18) and publicly available annual report data.

DRI Peer Research Revenue Per Faculty Ratio

DRI Peer *(Comparison and Aspirational)*	FY18/CY18 Research Revenues	Research Faculty (2018)	Estimated Revenue Per Faculty
gti	$ 131,900,000	128	$ 1,030,469
MRIGlobal	$ 109,000,000	305	$ 357,377
SwRI	$ 344,271,000	1,881	$ 183,026
DRI	$ 31,719,000	136	$ 233,228
CSH Cold Spring Harbor Laboratory	$ 44,976,944	216	$ 208,227
Woods Hole Oceanographic Institution	$ 101,968,861	243	$ 419,625

Sources: NSF HERD Survey (FY18) and publicly available annual report data.

DRI Faculty and Research Output



Innovation and Invention

Technology Transfer & Research Commercialization	FY15	FY16	FY17	FY18
Innovation/Invention Disclosures	4	2	0	5
New Patent Applications Filed	0	0	0	0
U.S. Patents Issued	0	2	2	1
Exclusive Licenses/Options	0	1	0	0
Non-Exclusive Licenses/Options	0	0	0	0

Source: UNLV Office of Economic Development and Tech Transfer

First successful spinout from DRI research.

Tŭ Biomics

Lab-to-Field antifungal solutions addressing soil and crop health.

NSHE Teaching and Student Advising (2019/2020 Academic Year)

63

UNR/UNLV grad students with DRI research faculty as primary advisors

28

UNR/UNLV graduate students supported by DRI

15

NSHE classes taught by DRI research faculty

42

DRI research faculty involved in teaching and advising at NSHE institutions

K-12 Education and Outreach (2019)

30,970

Nevada students reached by DRI Science Alive K-12 programming

23,297

Nevada students reached by DRI Green Box and STEM Kits

7,673

Nevada students reached via DRI in-class visits, special events, and camps

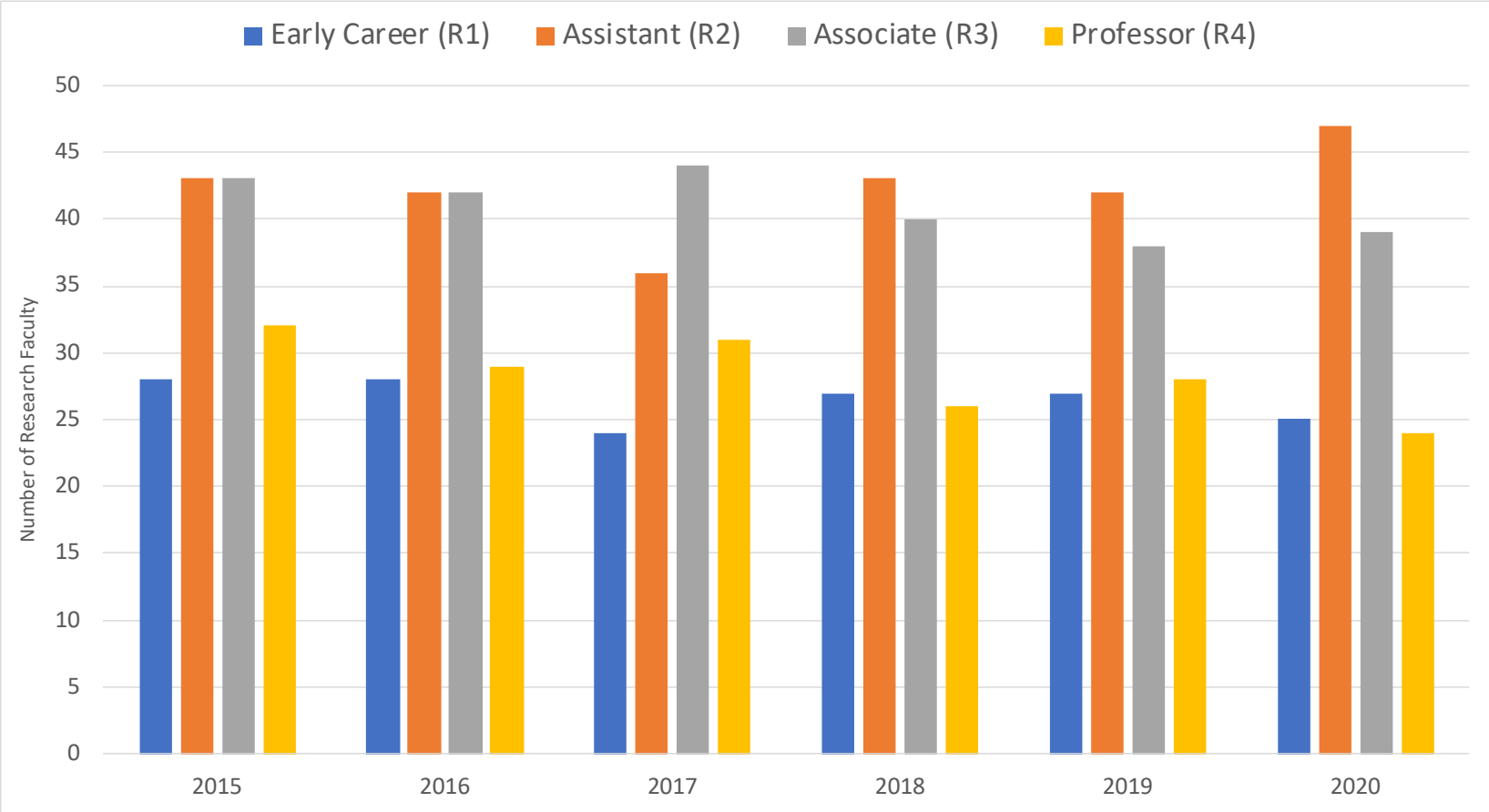
688

Nevada K-12 teachers and educators trained through DRI-led training programs

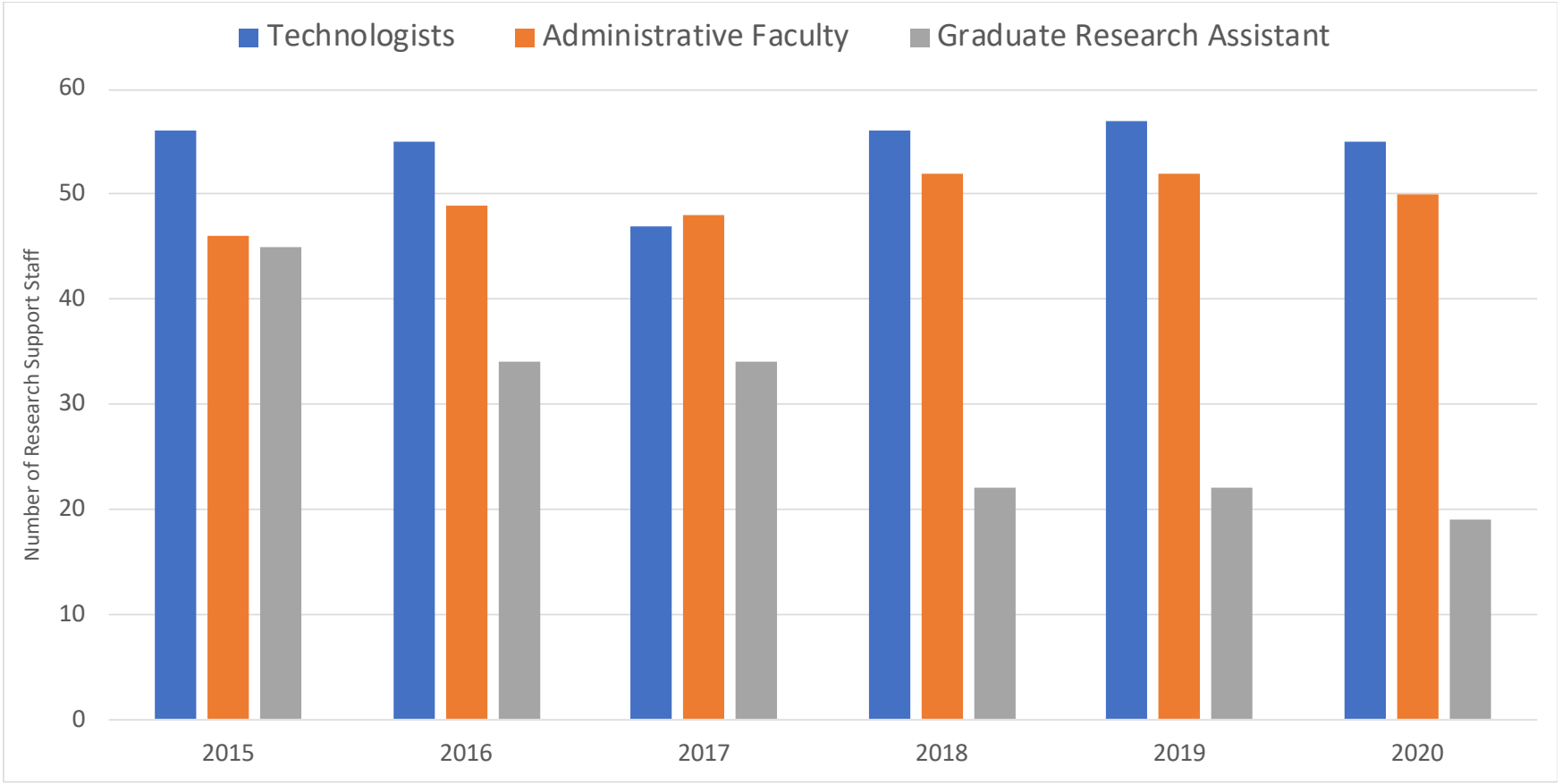
DRI's Workforce Diversity Trend

Research Personnel	2015	2016	2017	2018	2019	2020
Males	63%	66%	64%	61%	61%	60%
Females	37%	34%	36%	39%	39%	40%
Minority Groups *(percent of total)*	18%	20%	19%	15%	15%	19%

DRI's Research Workforce



DRI's Research Support Workforce



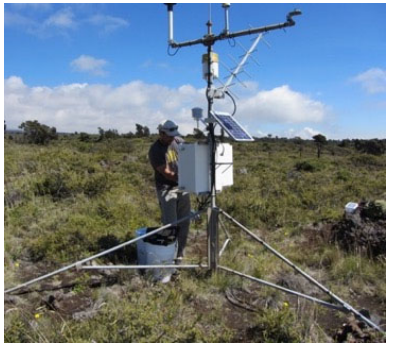
Economic Impact and Return on State Investment

*DRI's State appropriations in the amount of **$7.8 million** make up 17.2% of total FY18 DRI revenues of **$45.5 million**.*

*In other words, for every **$1** provided through State appropriations, **$4.82** are generated from other sources for a total of **$5.82** in revenues.*

- Source: DRI institutional economic impact and fiscal benefit report. EKAY Economic Consultants, April 2019



Community Outreach and Engagement

20 Public events hosted in 2019

- Over 3,000 people visited our campuses for our Open Houses
- Hosted our first-ever ”Day at the Legislature”
- Welcomed visitors to our Boulder City Research Facility

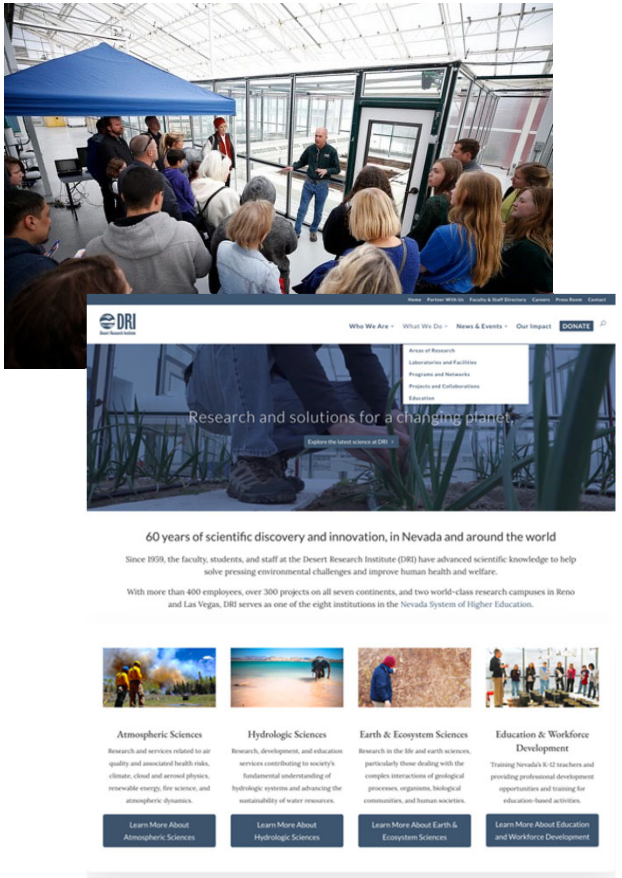
Social Media Engagement in 2019

- Facebook = Up 15% over previous year
- Twitter = Up 11% over previous year
- Instagram = Up 28% over previous year

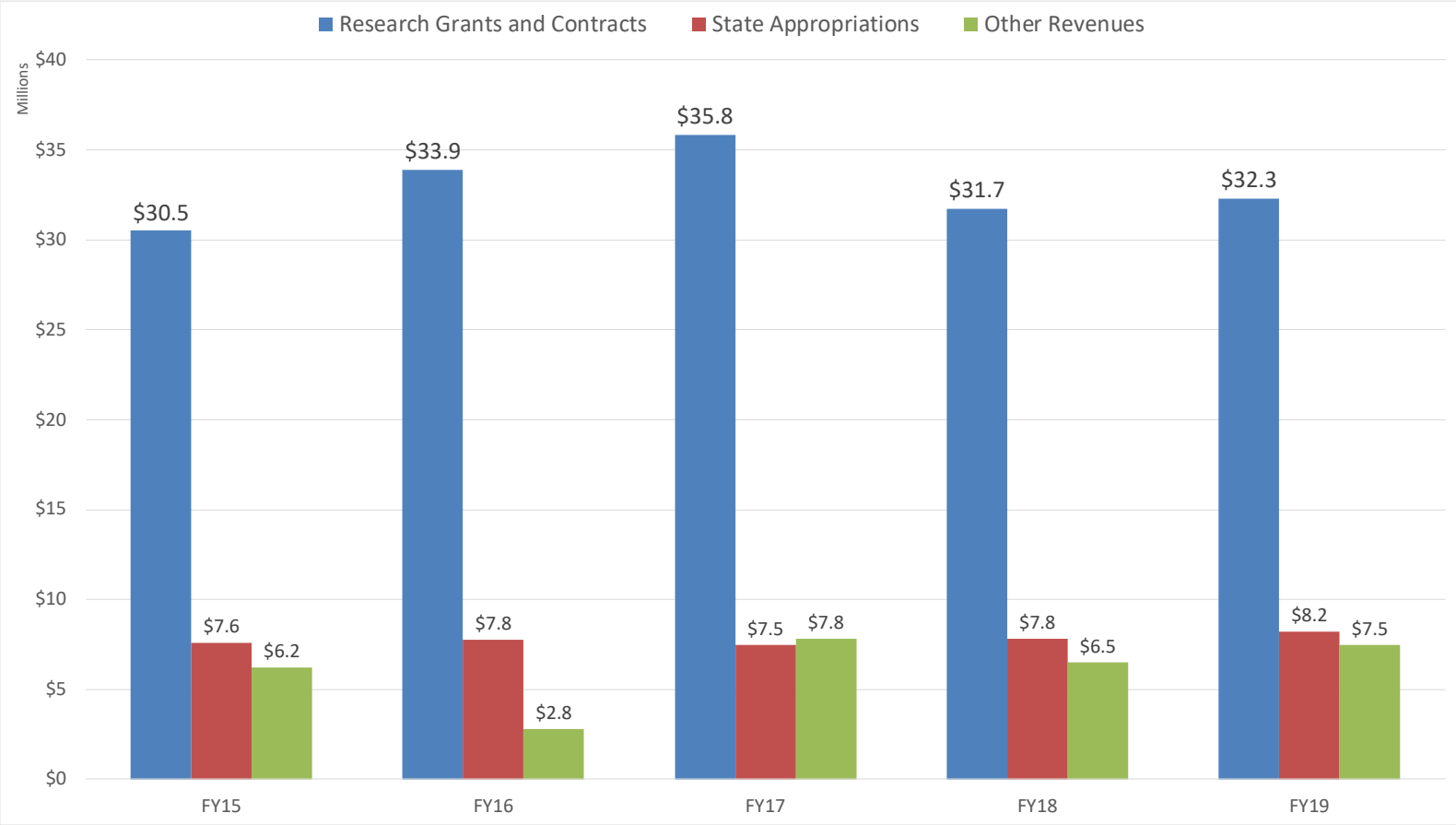
2019 Communications and Outreach Awards

DRI received top honors for public outreach, communications, media relations, websites and social media campaigns.

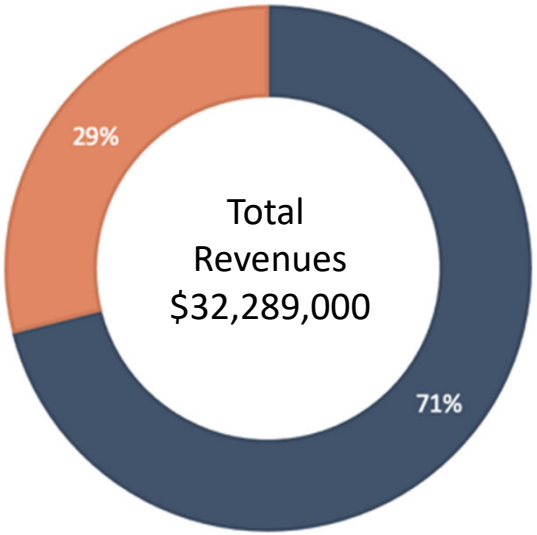
- 4 Pinnacle Awards from PRSA Las Vegas
- 3 Silver Spike Awards from PRSA Sierra Nevada



DRI Revenue Trend - By Source

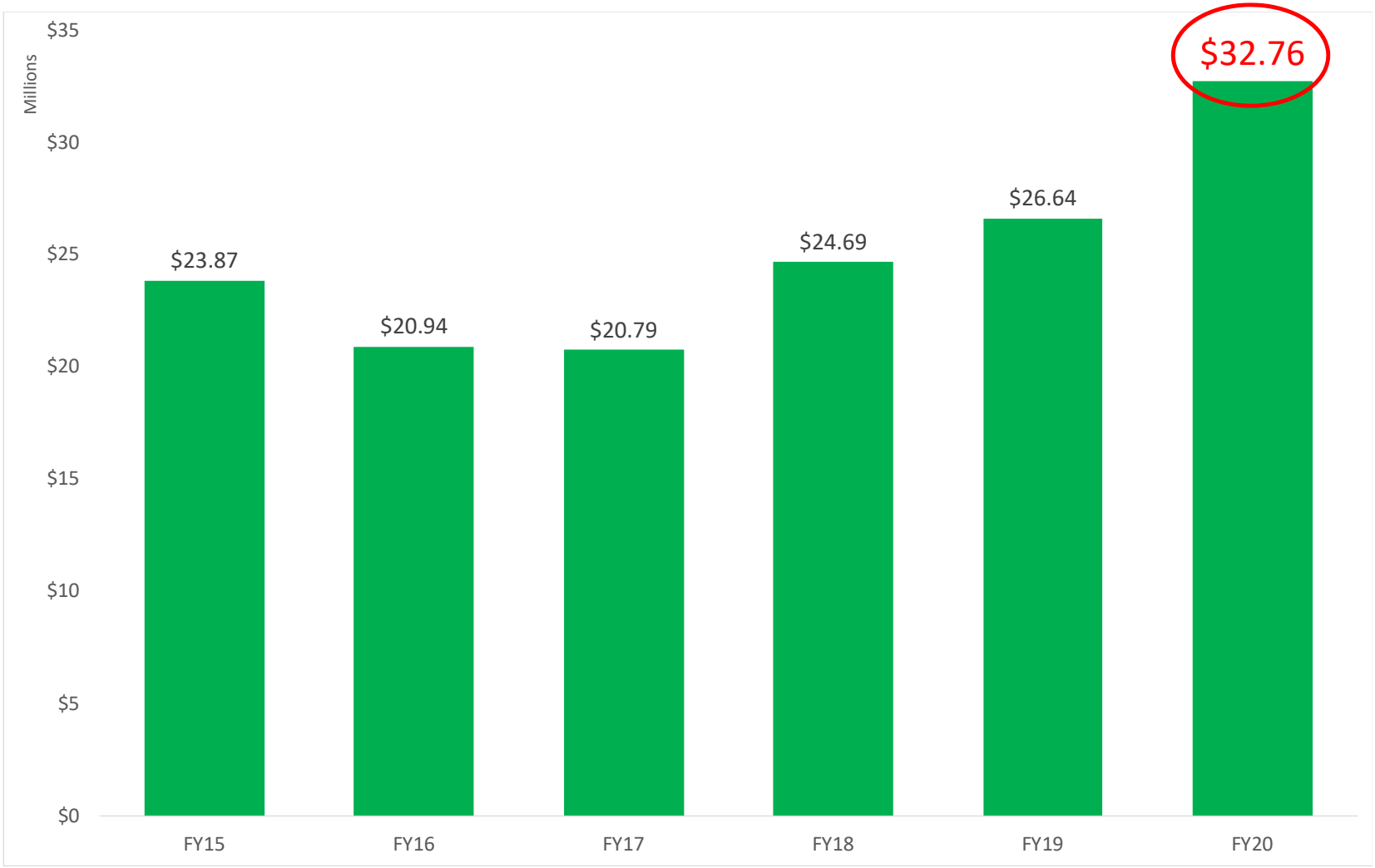


FY19 Grants and Contracts Funding *(by source)*



Total Federal	$22,938,000	71%
Dept. of Energy (DOE)	$5,506,000	17%
Dept. of Defense (DOD)	$5,353,000	17%
Environmental Protection Agency (EPA)	$2,065,000	6%
Dept. of Interior (DOI)	$3,189,000	10%
National Science Foundation (NSF)	$1,637,000	5%
Dept. of Commerce (DOC)	$2,046,000	6%
USDA	$1,056,000	3%
NASA	$1,730,000	5%
Other	$356,000	1%
Total Non-Federal	$9,351,000	29%
Private	$7,072,000	22%
State Government	$1,989,000	6%
Local Government	$290,000	1%

New DRI Research Awards as of March 31



Transition to External Review Presentation

DRI 2020 External Review

Presentation to the Nevada System of Higher Education Board of Regents

June 2020

Vic Etyemezian, Ph.D
Interim Vice President for Research

Desert Research Institute

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External Review Committee

Craig Benson
Dean, School of Engineering
University of Virginia

Bob Detrick
President, Incorporated Research Institutions for Seismology

Sheryl Ehrman
Dean, College of Engineering
San Jose State University

Jim Coleman
Vice Chancellor for Academic Affairs
University of Arkansas

Jeff Dozier, *Review Chair*
UC Santa Barbara
Founding Dean, Bren School of Environ. Science & Management

John Samet
Dean, Colorado School of Public Health

Highlights

- Impressed by the breadth and quality of science being done across DRI
- Impressed by the excellence and dedication of both the faculty and support/administrative staff
- Early Career Faculty were positive and excited about their work
- Need to strategically recruit and hire early- and mid-career faculty
- Strive to provide faculty more “hard” money to have time to think, develop new ideas, and to mentor and connect to other faculty

Recommendations

- Establish a distinctive research identity
- Establish an external DRI Science Advisory Board
- Develop a resourced strategic plan
- STEM education should be a part of DRI's core mission

Structure and Staffing

Departmental/Lab Structure:

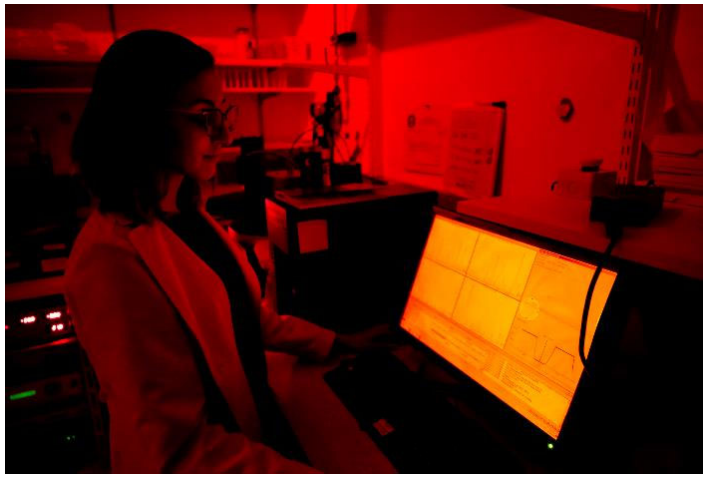
- Consider a theme-based structure vs. current division departmental structure
- Shift to centralized laboratories
- Standardize processes and allocation of resources
- Develop a consistent institutional approach to infrastructure investments
- Explore a business model rather than an academic model

Staffing:

- Strategically hire early- and mid-career faculty
- Improve mentoring of early-career faculty

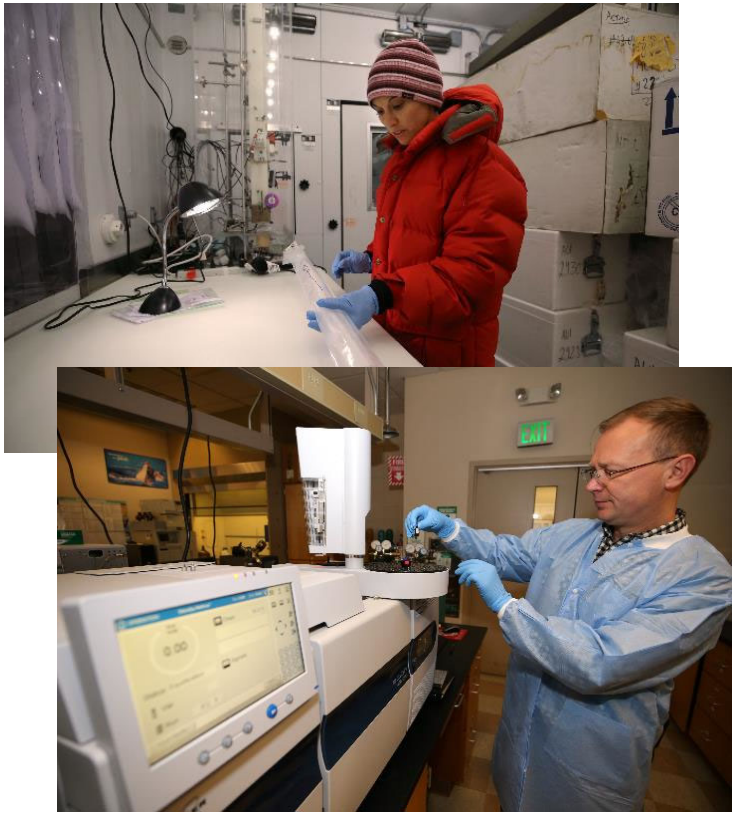
Research Mission

- DRI has received worldwide recognition for PI-led investigations
- Prioritize team science and pursue large, multiyear awards
- Create an ecosystem to support development of large proposals



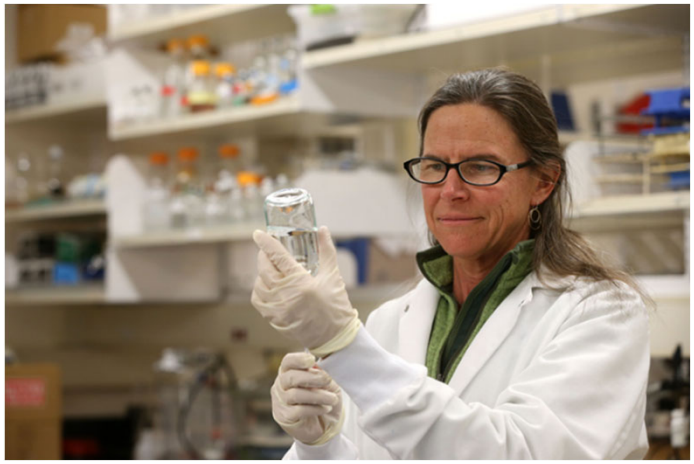
Investment (ICR and other) and Budget Priorities

- Provide faculty more “hard” money to have time to think, develop new ideas, and to mentor and connect to other faculty
- Explore joint appointments between DRI and other NSHE institutions
- A safety net is needed, primarily for early career faculty
- Focus on investing ICR and State support funding for highest ROI (but tolerant of risk)
- Use ICR return to incentivize successful faculty, team science, & long-duration projects



New Revenue Streams

- Pursue private fundraising from foundations and individuals
- Figure out how to monetize some science services, innovative technology, etc.
- Structure DRI Foundation to support development of new revenue streams and to support innovation



Thank you!