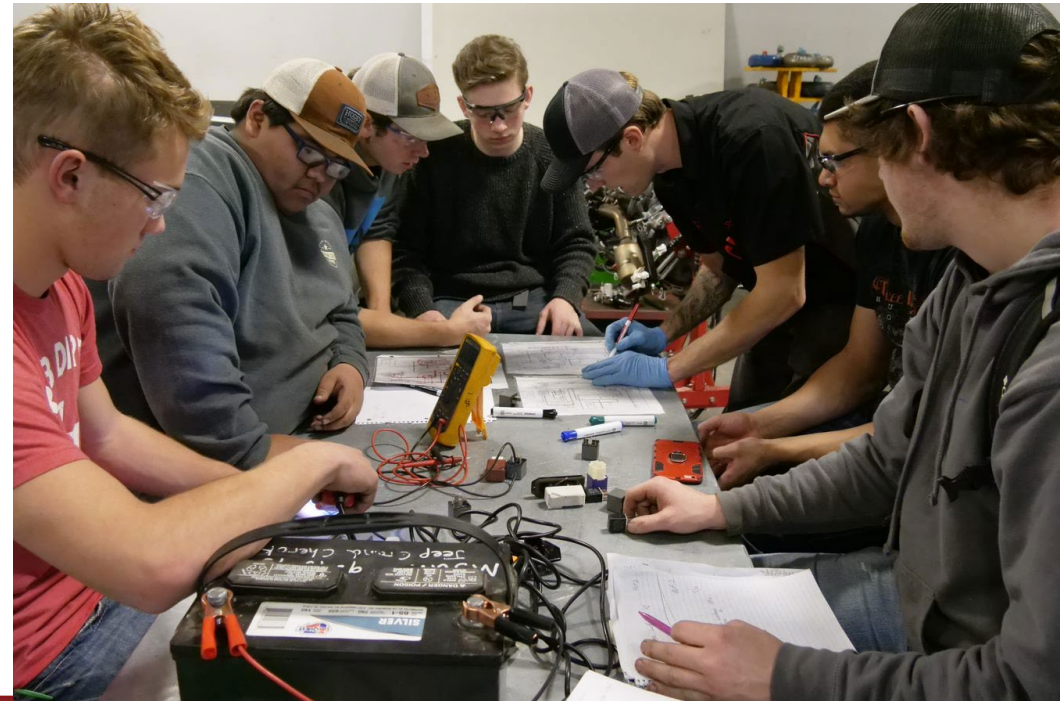


Career and Technical Education at MSUN

David Krueger, Dean College of Technical Sciences
Montana State University Northern
May 19, 2022



CTE Programs at MSUN

Certificates:

**DIESEL TECHNOLOGY
WELDING TECHNOLOGY**

Associates of Applied Science:

**AGRICULTURAL MECHANICS TECHNOLOGY
AGRICULTURAL TECHNOLOGY
AUTOMOTIVE TECHNOLOGY
DESIGN DRAFTING TECHNOLOGY
DIESEL TECHNOLOGY
ELECTRICAL TECHNOLOGY
CIVIL ENGINEERING TECHNOLOGY
MANUFACTURING
PIPEFITTING
PLUMBING TECHNOLOGY**

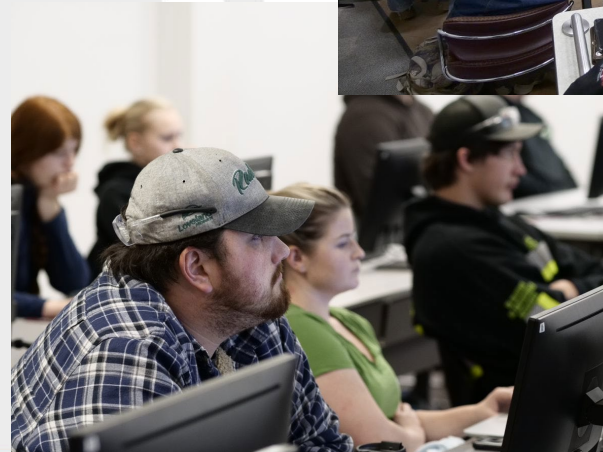
Associates of Science:

**NURSING
PROGRAM OF STUDY IN BUSINESS TECHNOLOGY**



Model for Success

- Active Industry Partnerships
- COOP/Internships
- Dual Enrollment
- TekNoXpo – Student pathway exploration
- Workforce Development
- Stackable Credentials
 - Major, Minor, Certificates
 - Precision Technology
 - Mechanics
 - Business
 - Welding



Agriculture Tech - Example

- Flexible with elective credits to pursue areas such as:
 - Production Ag
 - Ag Business
 - Ag Mechanics
 - Welding/Fabrication
 - Any student specialization



Workforce Development

- Accelerated Apprenticeship Education
 - 39 apprentices spring 21, 44 fall 21, 57 spring 22
 - Apprentices from over 35 plumbing/electrical companies
 - Over 90% course completion rate to date
 - 89% program satisfaction rate
 - Pre-apprenticeship pathway with high schools
 - Billings West
- Endorsement for High School Industrial Tech and Ag Teachers
 - 15 teachers with class 4/5 license taking 45 credits over a 3 year span online with 2 week summer lab sessions.



Future Directions for MSUN

- Short term academic needs
 - Precision Technology
 - Ag, Auto, Construction, Engineering
 - Equine
 - Meats
- Expand distance delivery of apprenticeship education
- Short term training opportunities with technicians and new technologies
- Development of a Center for Workforce Development



Questions?



MONTANA
UNIVERSITY SYSTEM

Dual Enrollment and Career & Technical Education

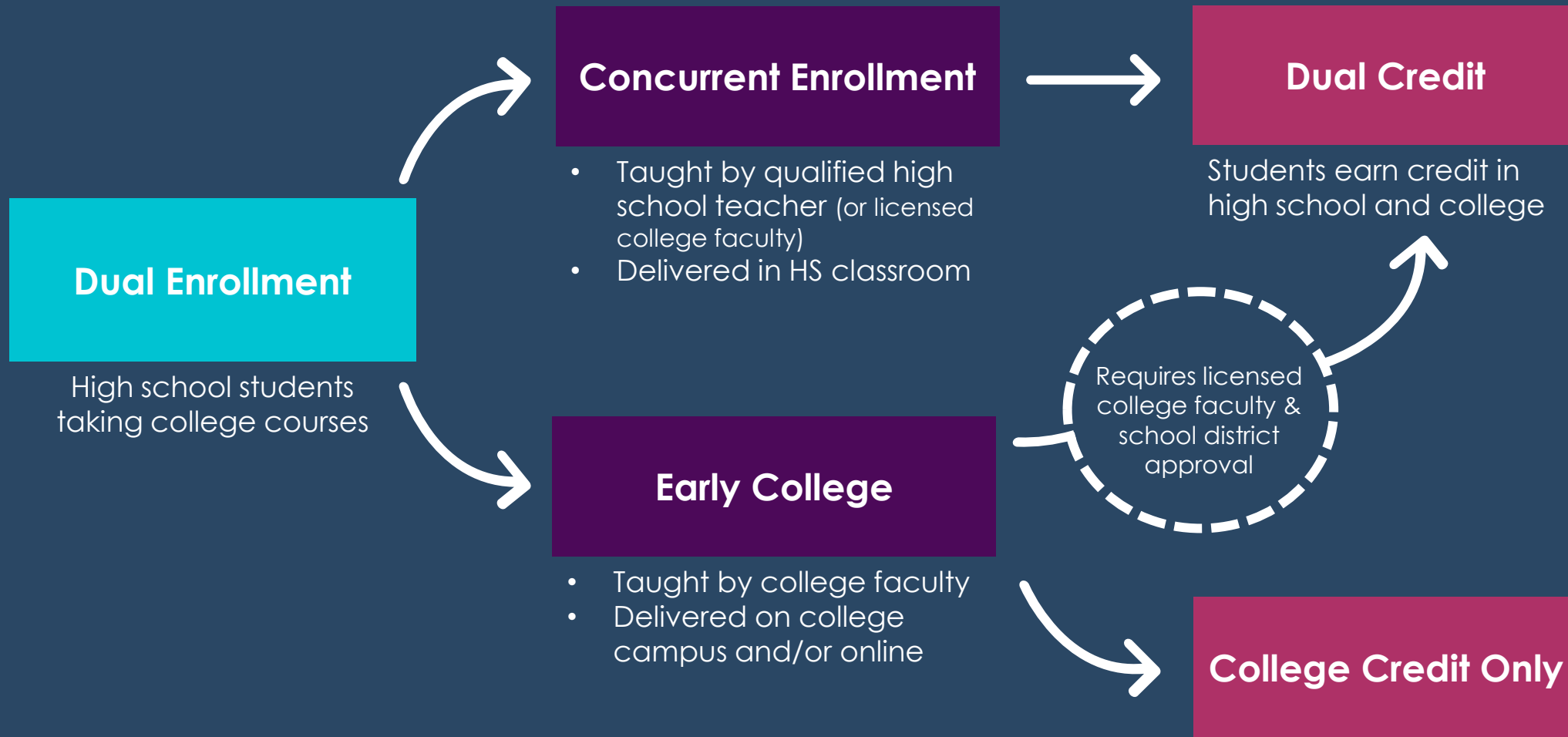
Jacque Treaster

Director of Dual Enrollment and Career & Technical Education
Montana University System

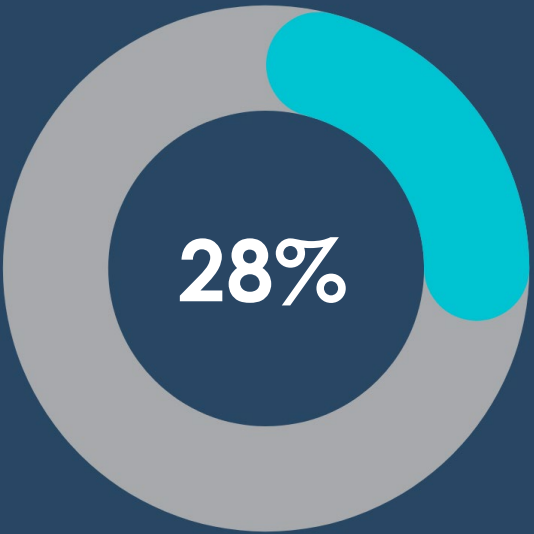


OCHE – Academic, Research, and Student Affairs

What is Dual Enrollment?



How Much Dual Enrollment is CTE?



of Dual Enrollment
was **CTE** over the past
three years
(2018-19 to 2020-21)

	2016-17	2017-18	2018-19	2019-20	2020-21
CTE %	25%	26%	27%	29%	28%
CTE Credits	6,005	7,042	9,199	10,680	9,937

ONE TWO FREE.

ONE TWO FREE.

ONE TWO FREE.

+31%
increase in
DE CTE credits
(2017-18 to 2018-19)



CTE DE by Career Cluster*

*The past three
academic years,
2018-19 to 2020-21

Career Cluster	CTE Credits	% of CTE Credits
Manufacturing	7,629	26%
Arts, Audio/Video Technology & Communications	4,501	15%
Business Management & Administration	4,483	15%
Information Technology	4,287	14%
Health Science	3,118	10%
Education & Training	2,274	8%
Finance	1,631	5%
Law, Public Safety, Corrections & Security	437	1%
STEM	419	1%
Architecture & Construction	316	1%
Transportation, Distribution, & Logistics	278	1%
Agriculture, Food, & Natural Resources	265	1%
Human Services	94	<1%
Marketing	42	<1%
Hospitality & Tourism	32	<1%
Government	10	<1%



Montana Grow Your Own Educator Program

Angela McLean, Ed.D.
Director of American and Minority Achievement and K-12 Partnerships
Montana University System







MONTANA
UNIVERSITY SYSTEM

Innovation in Montana

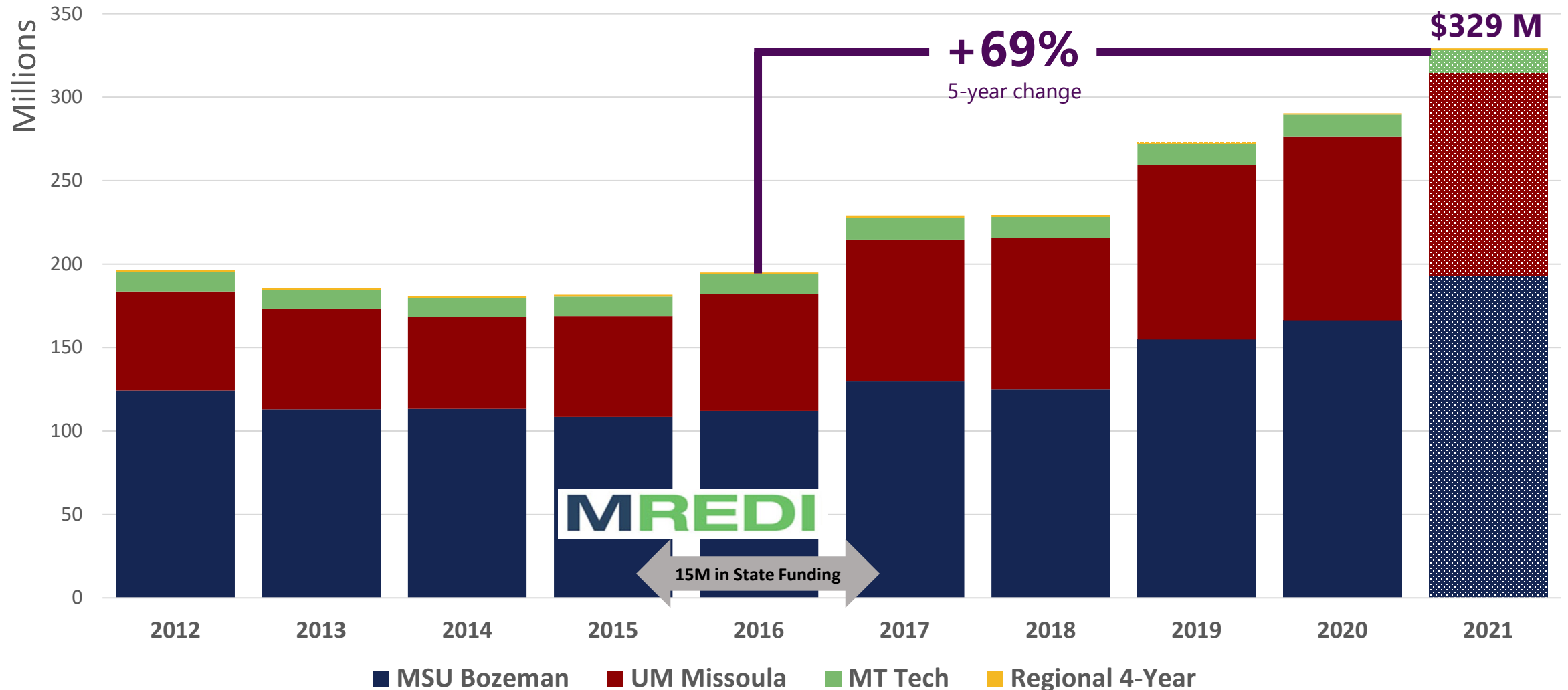
Joe Thiel
Director of Academic Policy & Research
Montana University System



OCHE – Academic, Research, and Student Affairs

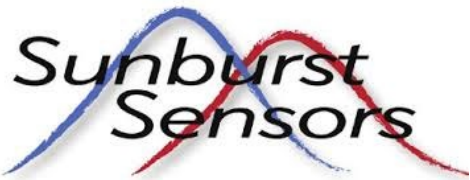
MUS Research Activity

(SOURCE: National Science Foundation HERD survey; values in nominal \$)



62 new companies have spun out of the MUS research enterprise since 2006

AG & THE ENVIRONMENT



SOFTWARE



BIOTECH



OPTICS



Archer Biologicals



Montana Molecular

EDUCATION



BIOTECH

628+

Montana Bio Companies



3rd

In the nation for growth in academic
bioscience R&D, 2014-2019

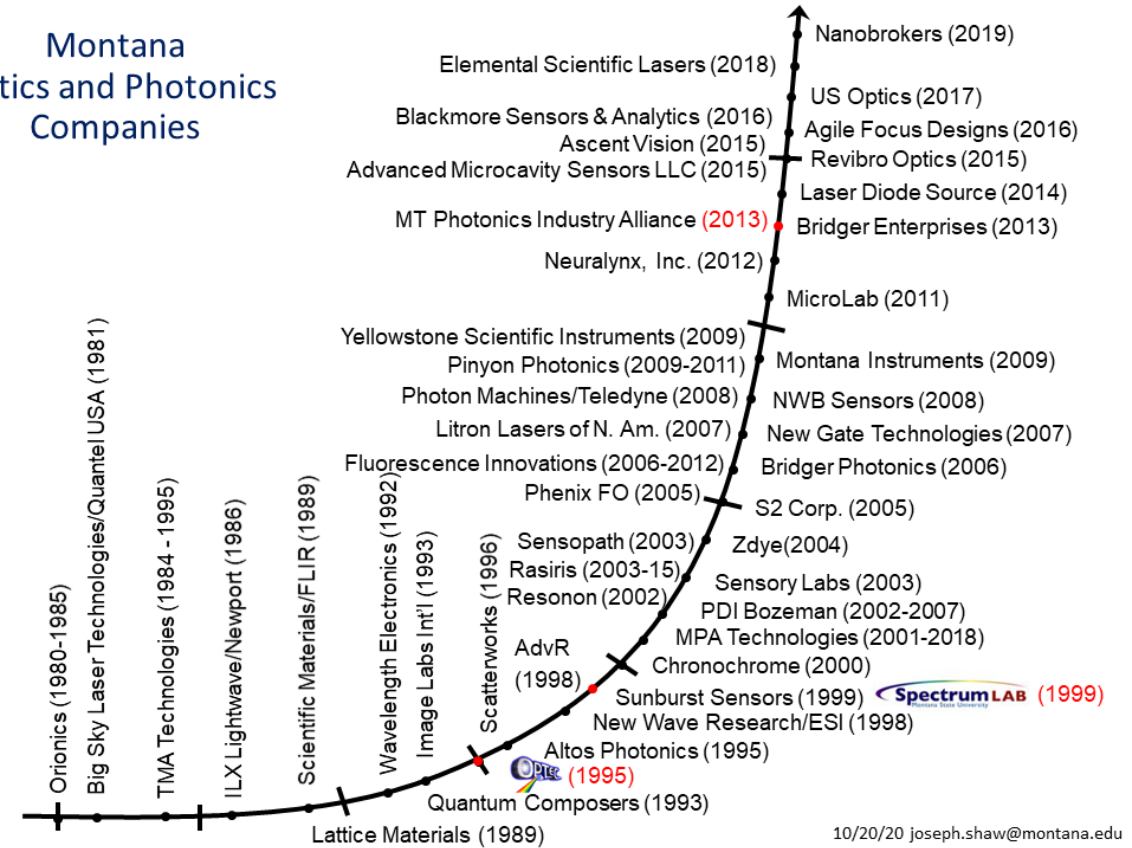
1st

Highest success rate for NIH
SBIR/STTR grants



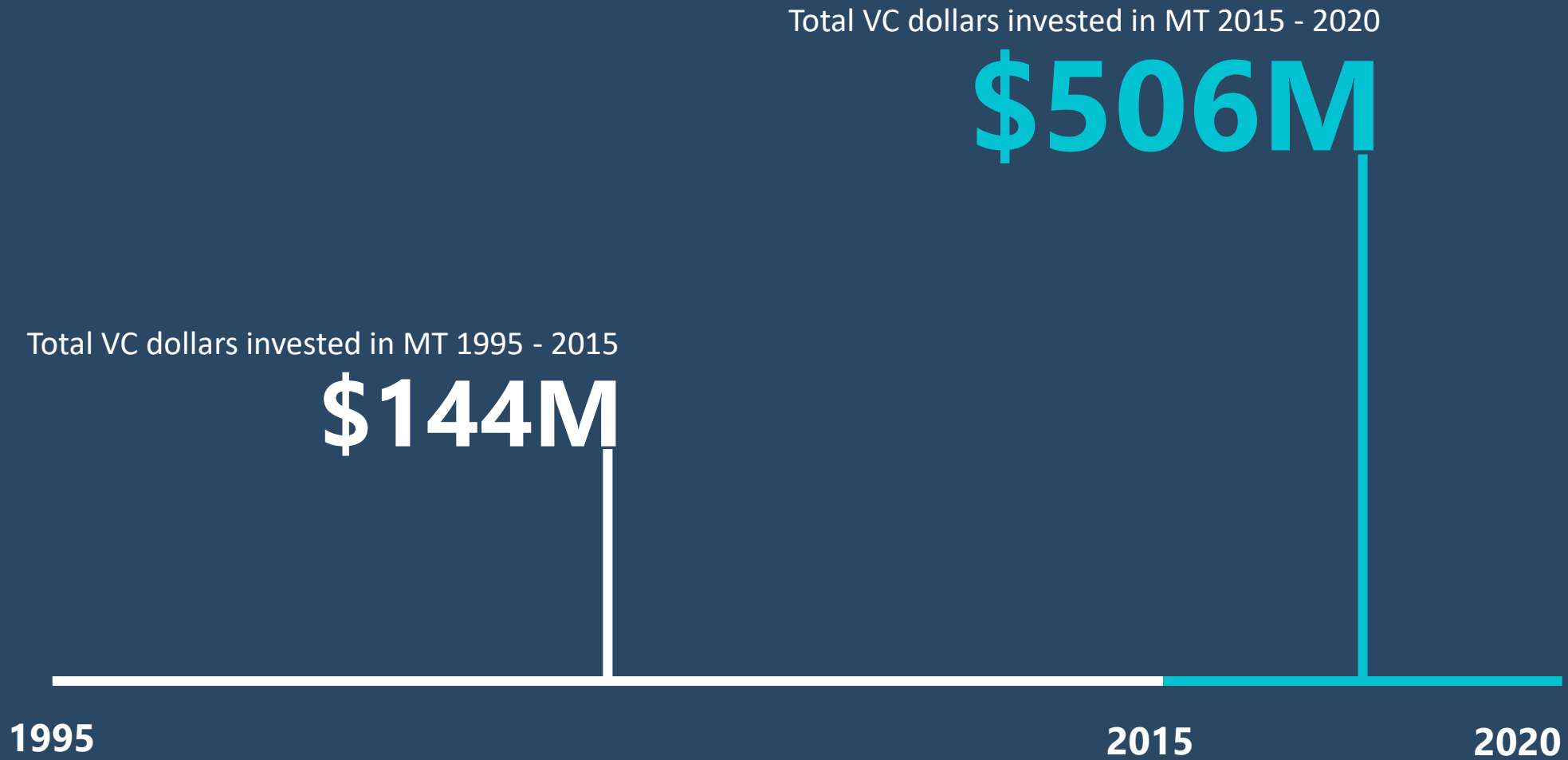
OPTICS

Montana
Optics and Photonics
Companies

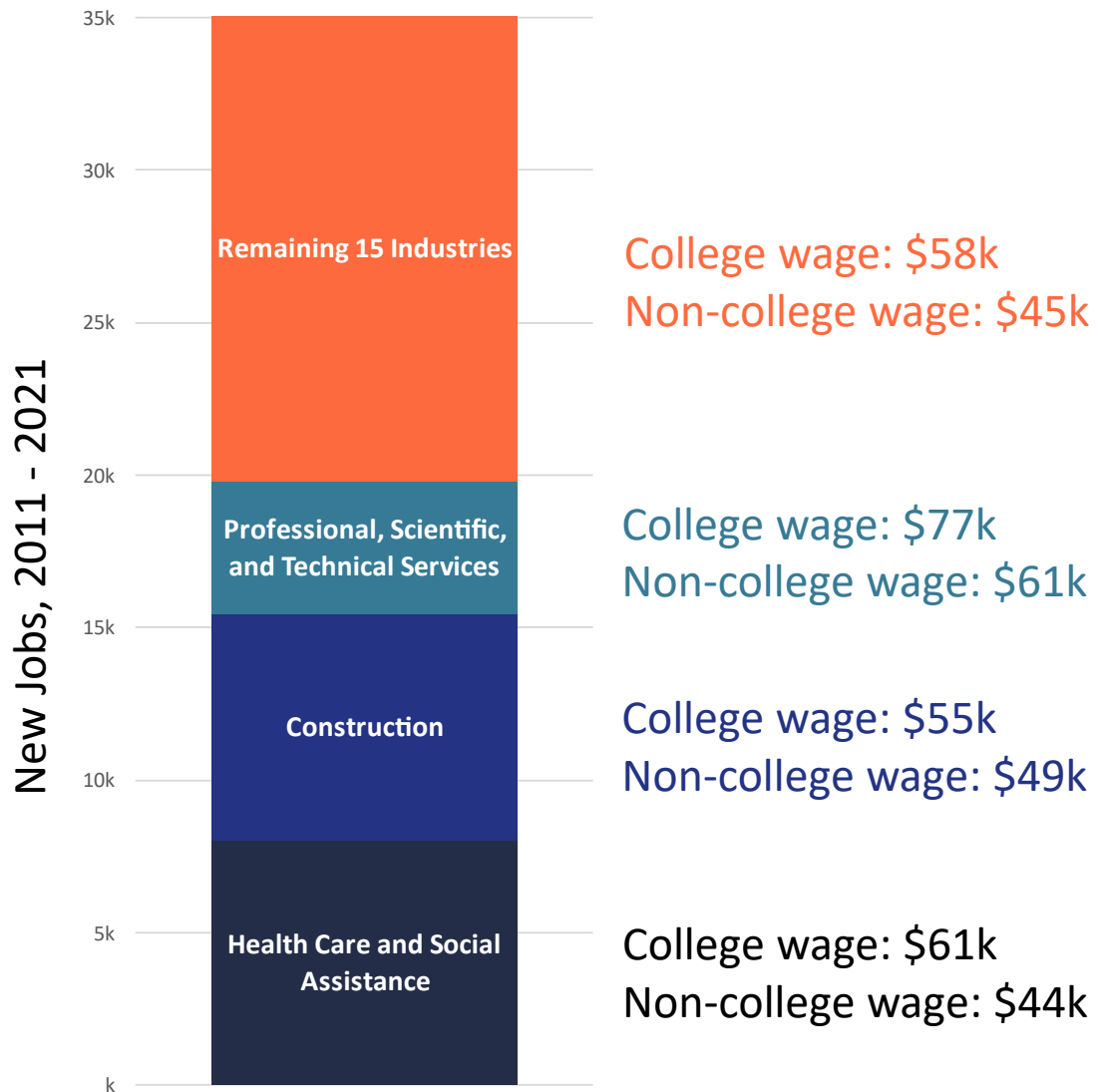


10/20/20 joseph.shaw@montana.edu

OCHE – Academic, Research, and Student Affairs



Montana is adding its best paying new jobs in innovation industries



- ❖ Between 2011 and 2021, Montana added 35,100 new jobs for those aged 25+.
- ❖ 53% of these new jobs went to Montanans with a postsecondary degree or certificate.
- ❖ On average, those with a degree or certificate earned \$13k more per year.
- ❖ The share of jobs paying \$50k+ going to college grads grew to 63%.

NOTES: OCHE analysis of US Census Bureau Quarterly Workforce Indicators (QWI) data. Analysis shows the difference in the number of stable jobs held by Montanans 25+ by industry sector from Q1 2011 to Q1 2021.



The Montana Innovation Alliance



A public-private partnership to fuel Montana's growing innovation economy by seeding and supporting companies and collaborative networks around scientific discoveries.

1. Identify shared strategies to grow innovative business
2. Coordinate across sectors to help firms to start, relocate, or grow in Montana
3. Better leverage university resources (people, facilities, equipment) to support innovative business and develop collaborations between researchers and industry

Source: The Economist Intelligence Unit "Innovation Clusters: Understanding Life Cycles" <http://destinationinnovation.economist.com/wp-content/uploads/sites/3/2015/12/ICUL.pdf>