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UM001 to 37607

once to join, then submit your question(s)

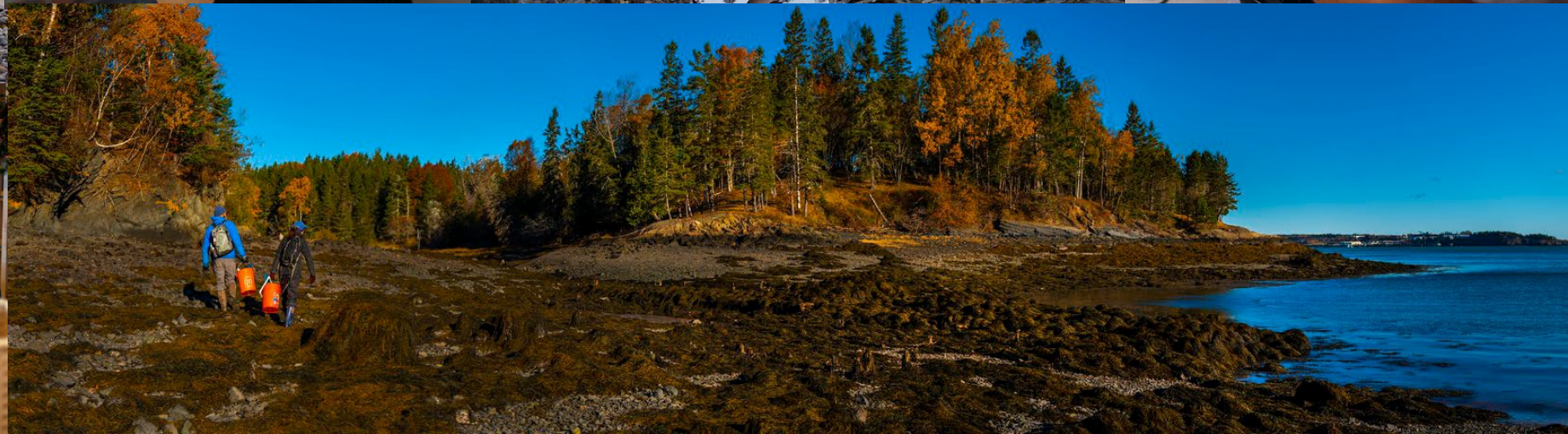
February 25, 2019

Town Hall Conversation: *The Future of Research and Development at UMaine and UMM*

President Joan Ferrini-Mundy and UMaine Faculty Senate President David Townsend


Welcome to the
Maine Business School


INDIA



STRATEGIC VISION AND VALUES

Fostering Learner Success

Creating and Innovating for Maine and Beyond

Growing and Stewarding Partnerships

UMS BOT Strategic Priorities, December 2018

Advancing Workforce Readiness and Economic Development

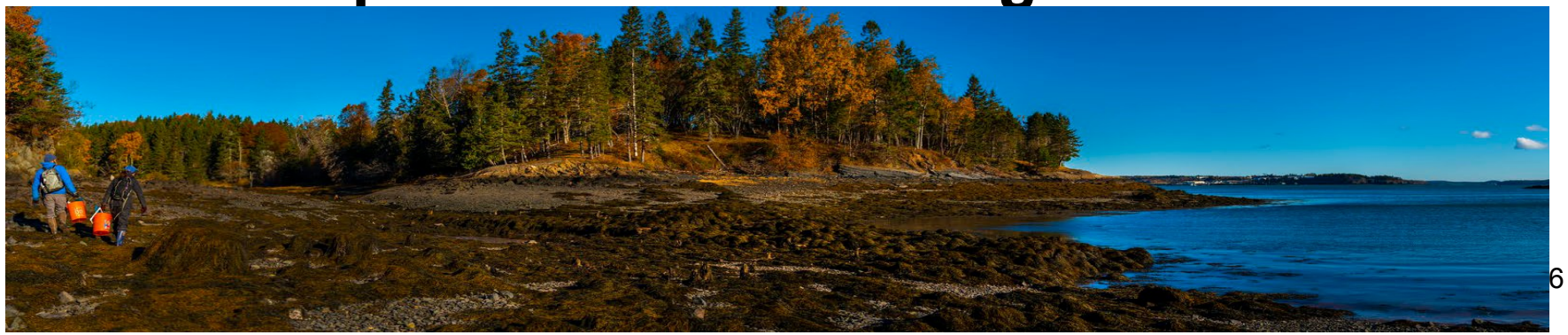
Increasing Maine Educational Attainment

Aligning Academic Programs and Innovation to Drive Student Success and Employer Responsiveness

Maintaining Competitiveness and Sustainability to Meet Critical State Needs

Advancing Workforce Readiness and Economic Development

- **Investments in Engineering at UMaine**
- **Maine Center for Graduate and Professional Studies**
- **Research and Commercialization**
- **Engineering Pathways and Nursing Outreach to Rural Maine**
- **Development of R&D Strategic Plan**



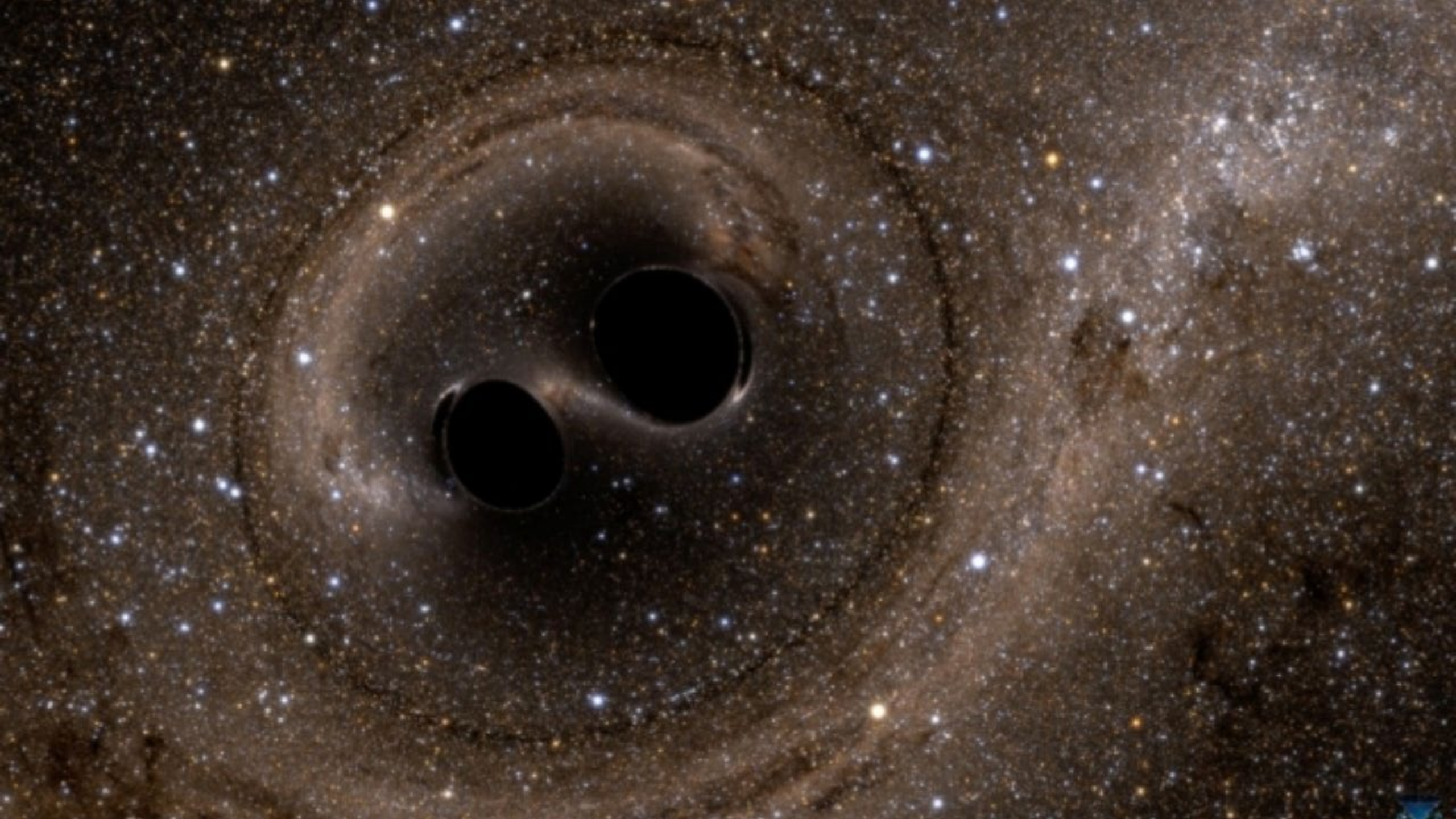
University of Maine System Board of Trustees Declaration of Strategic Priorities to Address Critical State Needs (12/18/18)

1. Advancing Workforce Readiness and Economic Development

Action 2: Strengthen research and economic development efforts to support Maine industries and to foster business formation and expansion.

Immediate Deliverable: As chartered by the Chancellor, and in consultation with other System presidents and the Vice Chancellor for Academic Affairs, the University of Maine President will, by March 2019, deliver a **multi-year plan for prioritizing expanded research and development across the University of Maine System.**

https://youtu.be/OTgkWYSbh-w



Definition of R&D

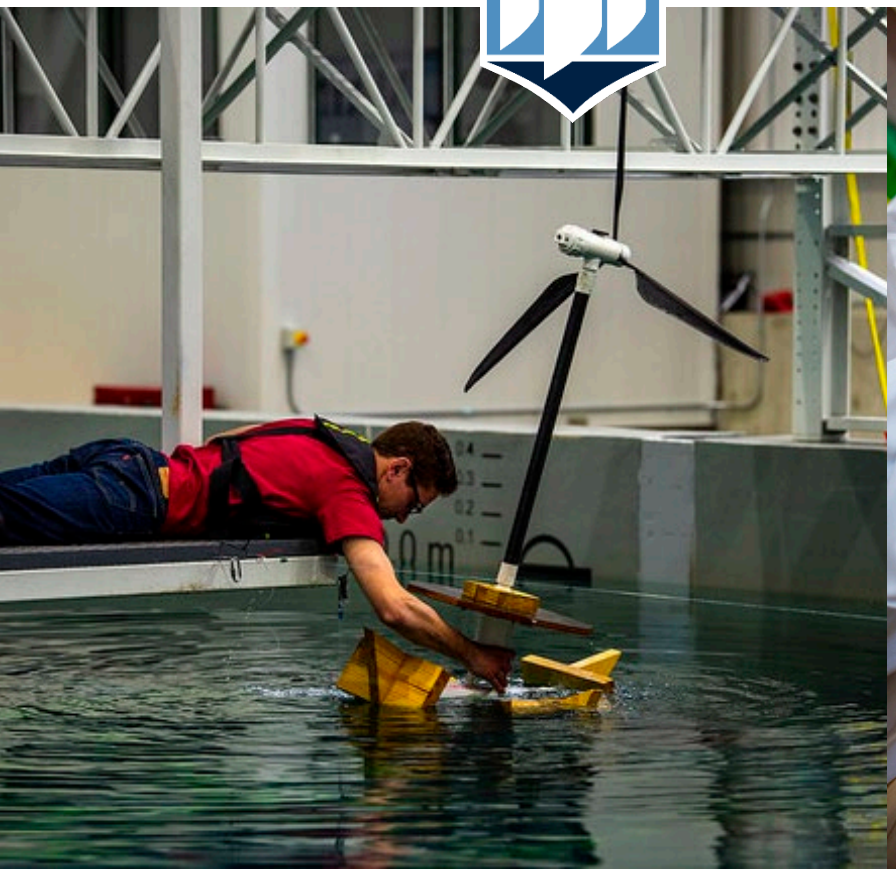
R&D is **creative and systematic work undertaken in order to increase the stock of knowledge—including knowledge of humankind, culture, and society—and to devise new applications of available knowledge**. R&D covers three activities defined below—basic research, applied research, and experimental development.

- **Basic research** is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any particular application or use in view.
- **Applied research** is original investigation undertaken in order to acquire new knowledge. It is directed primarily towards a specific, practical aim or objective.
- **Experimental development** is systematic work, drawing on knowledge gained from research and practical experience and producing additional knowledge, which is directed to producing new products or processes or to improving existing products or processes.

Source: NCSES, Higher Education Research and Development Survey, FY 2016. Available at https://www.nsf.gov/statistics/srvyherd/. See https://www.nsf.gov/statistics/randdef/#chp5

“The prestige and significance of any research university is the result of the cumulative impact of these high performing people [research-capable faculty, staff, and graduate students] supported by the infrastructure and research-related personnel of the institution”

Top American Research Universities, 2017; p. 3

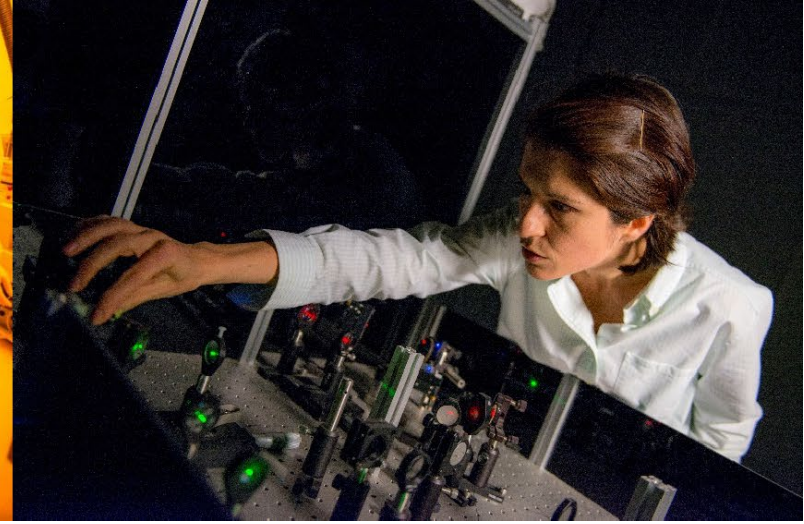


Higher Education Research and Development (HERD) Survey, National Science Board S&E Indicators (2017)

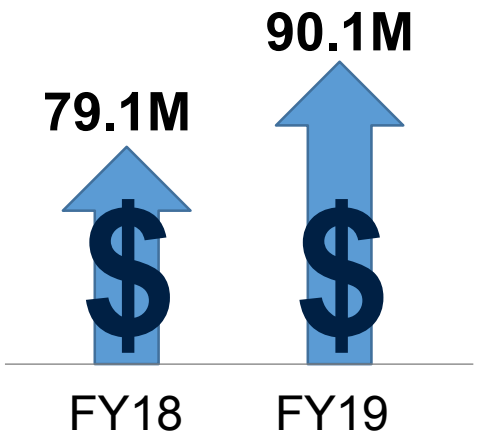
Institution	Total Research Expenditures
UNH	**$145,015,000**
UMaine	$99,502,000
USM	$7,147,000
Bowdoin	$2,340,000
Colby	$2,071,000
Bates	$1,853,000
MMA	$1,763,000
UMM	$737,000

*UMA, UMPI, UMFK, and UMF did not report expenditures via HERD

Advancing Workforce Readiness and Economic Development

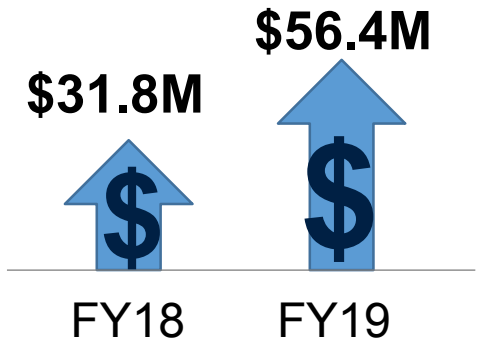


Requested Dollars are Up



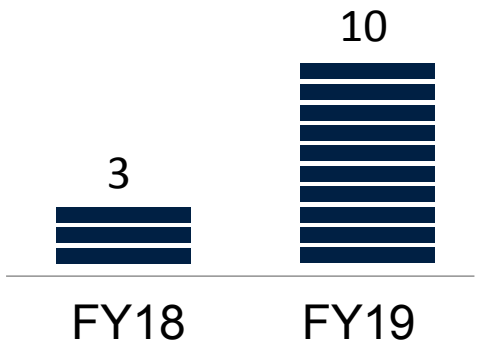
Dollar Value of External Funding Submissions July-December

Award Dollars are Up



Number of External Awards Received July-December

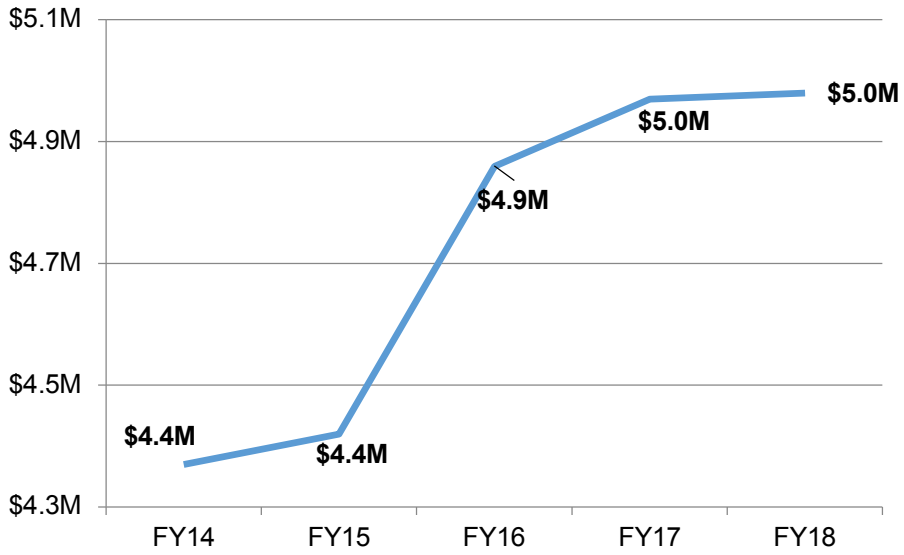
Large Dollar Value Awards ($1M+)



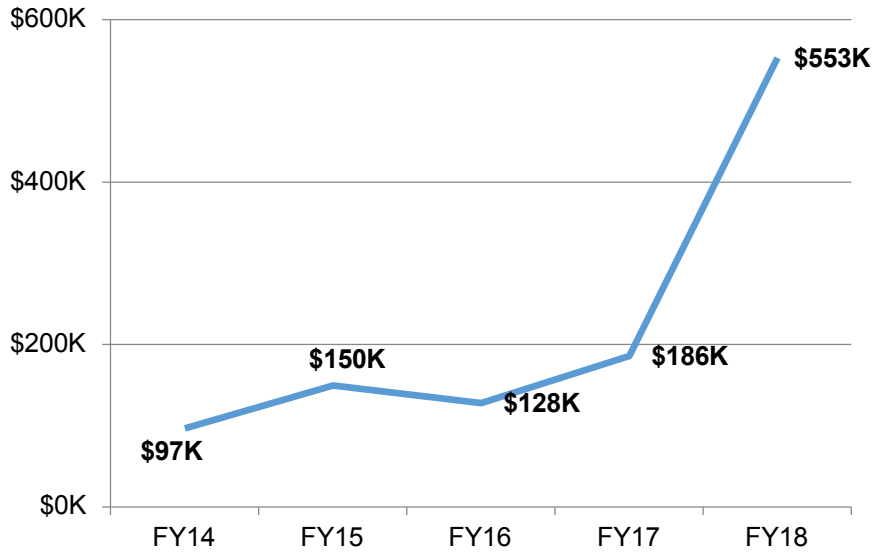
Awards Received July-December

Advancing Workforce Readiness and Economic Development

Innovation and Economic Development



Project Revenue in $millions



Licensing Revenue in $thousands

UMaine is Statewide

Maintaining Competitiveness and Sustainability to Meet Critical State Needs

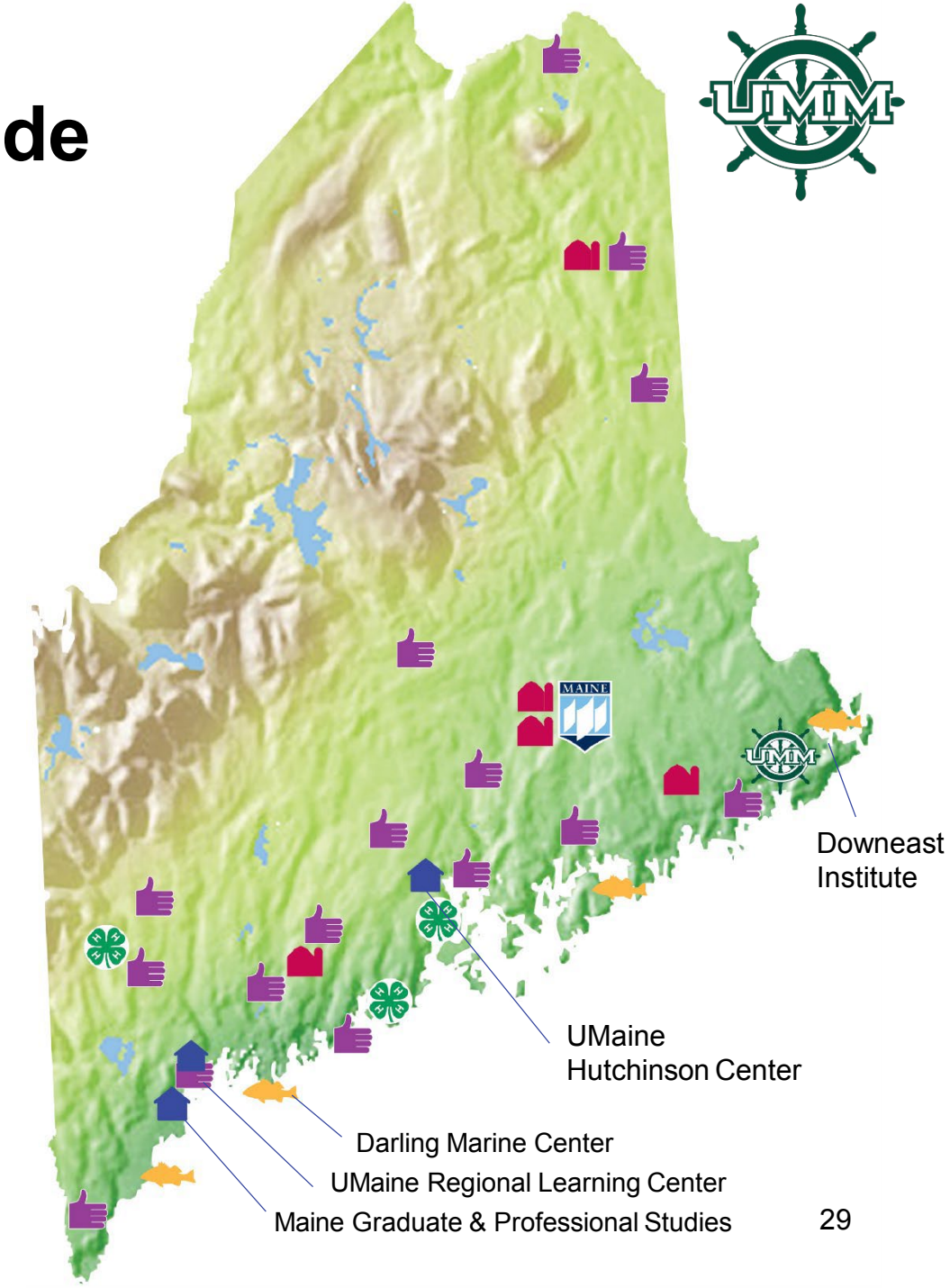
Cooperative Extension County Offices

Farms & Research Facilities

4-H Camps

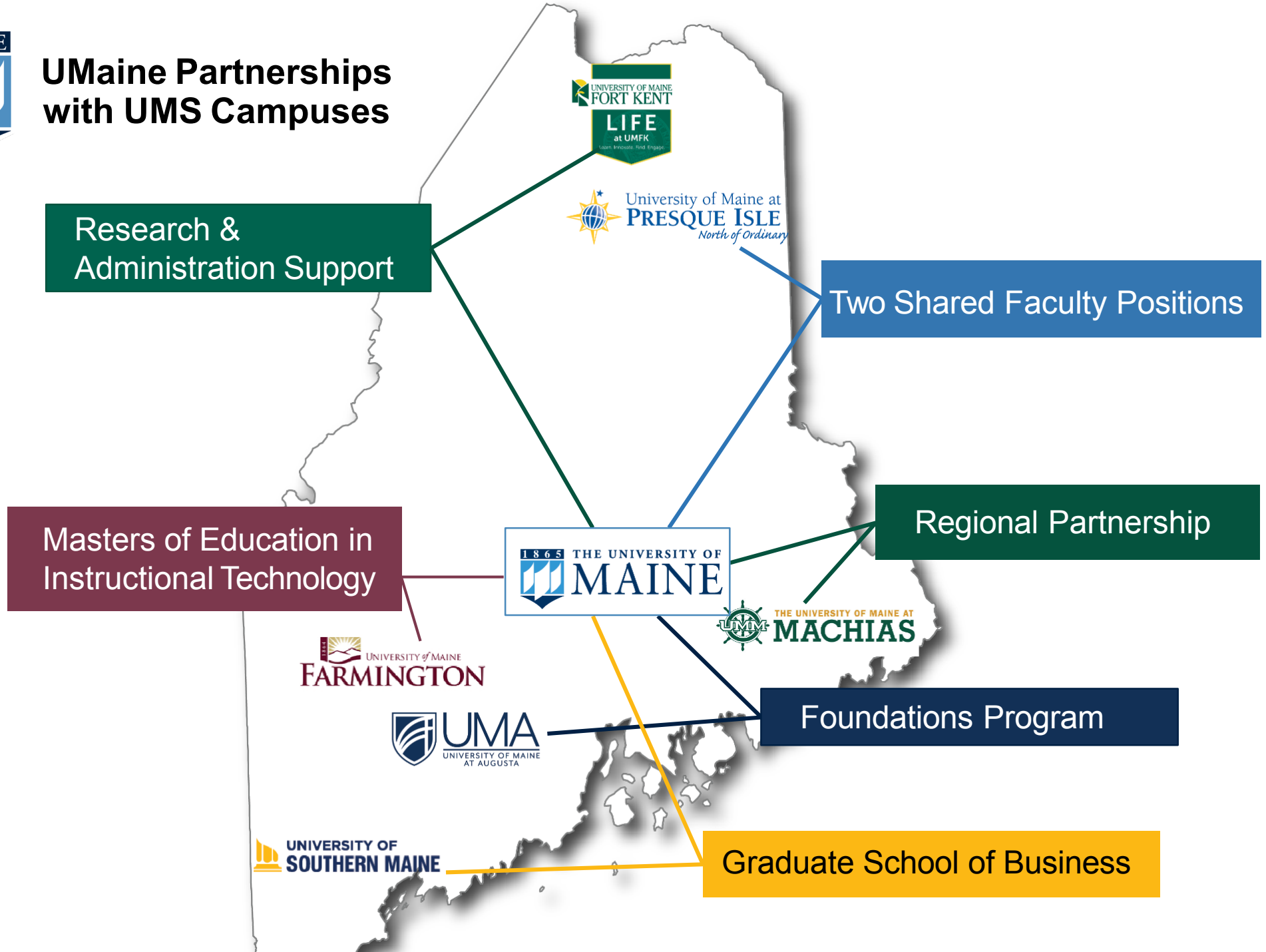
Marine Research Facilities

Academic / Outreach



UMaine Partnerships with UMS Campuses

Maintaining Competitiveness and Sustainability to Meet Critical State Needs



Process for development of R&D Plan

December 2019 - present

- Review of key documents from UMS, UMaine, State of Maine (e.g., *30 and 1000: How to Build a Knowledge-Based Economy in Maine and Raise Incomes to the National Average by 2010*, Maine State Planning Office, 2001)
- Learn about history of MEIF launch by Maine Legislature in 1997 (including UMaine Faculty Five), impacts over 20 years
- Assemble information from key national R&D reports (e.g. *National Science Board Science and Engineering Indicators 2018*)
- Jason Charland staffing from UMaine VP for Research &GS Office
- Steering Committee with UMS-wide engagement
- Outreach to UMS campuses
- Open fora on UMS campuses for input and ideas
- Present to BOT: March 24-25

Faculty Five (1996)

1. George L. Jacobson (Biology, Climate Change
2. Stephen A. Norton (Earth Sciences)
3. Malcom L. Hunter (Wildlife Ecology)
4. David C. Smith (History)
5. George Markowsky (Computer Science)

Notable outcomes:

- Increase in base budgets for all of higher ed.
- Establishment of the Maine Economic Improvement Fund (MEIF)
- Several bonds issued for R&D facilities
- Major increase in UM R&D activity
- Increased success rate with federal funders

MEIF Sectors (1998 – Present)

As stipulated in Maine law, the System directs MEIF dollars specifically to support university-based research in designated research areas:

1. Aquaculture and Marine Sciences
2. Biotechnology
3. Composites and Advanced Materials Technologies
4. Environmental Technologies
5. Information Technologies
6. Advanced Technologies for Forestry and Agriculture
7. Precision Manufacturing

UMS R&D Steering Committee Members

- Pankaj Agrrawal, Associate Professor of Finance, UMaine
- Brian Beal, Professor of Marine Biology, University of Maine at Machias
- Lucille Benedict, Associate Professor of Chemistry, Director of Quality Control Collaboratory, University of Southern Maine
- Habib Dagher, Executive Director, Advanced Structures & Composites Center, UMaine
- Sandra De Urioste-Stone, Assistant Professor of Nature-based Tourism, UMaine
- Caitlin Howell, Assistant Professor of Chemical and Biomedical Engineering, UMaine
- Brenda Joly, Associate Professor, Muskie School of Public Service, University of Southern Maine
- Benjamin King, Assistant Professor of Bioinformatics, UMaine
- Paul Mayewski, Director, Climate Change Institute, UMaine
- Penny Rheingans, Director, School of Computing and Information Science, UMaine
- Kris Sahonchik, Director, University of Southern Maine Research & Cutler Institute
- Kristy Townsend, Assistant Professor of Neurobiology, UMaine
- Karen Wilson, Associate Research Professor, Department of Environmental Science and Policy, University of Southern Maine

Proposed Goals to Drive the Expansion of UMS Research and Development

- **Goal 1: Make the State of Maine the most desirable state in the nation in which to live by 2030. Address this Grand Challenge for Maine by creating solutions through R&D that can be applied locally, nationally, and globally.**

- **Goal 2: Enhance Maine's economic viability by increasing capacity across all sectors statewide to invest in R&D.**

- **Goal 3: Generate the knowledge-growing workforce required for Maine's future, expanded R&D enterprise and innovation economy.**

Goal 1: Make the State of Maine the most desirable state in the nation in which to live by 2030

Metric: Each Grand Challenge component will have clear metrics and public dashboards in place by FY 2020.

Milestones

- UMS leadership generates statewide conversation about the Grand Challenge and its subcomponents, and announces focus for the next 5 years by fall 2019.

- UMS R&D and instructional resources are directed as appropriate toward the Grand Challenge and its subcomponents beginning with implementation of FY 2020 budget.

Goal 2: Enhance Maine's economic viability

Metric: Increase total R&D expenditures to 3% of Maine's Gross Domestic Product by FY 2025.

Milestones

A. The University of Maine receives Research 1 Carnegie Classification status by 2025.
B. Resources and expertise in UMS laboratories and research groups in the state's seven priority technology sectors are coherently deployed to help attract R&D-intensive industry to Maine, and to expand the R&D capacity of current Maine industry by fall 2020.
C. All UMS campuses have increased five-year R&D expenditure goals, consistent with institutional strengths and mission, through UMS incentives, partnerships, shared personnel, and common infrastructure and other approaches by fall 2021, with a goal of doubling current expenditures from external (federal and private) sources by FY2025.
D. State of Maine base investment in UMS R&D has increased adequately to support the personnel, facilities and infrastructure essential to a public university system R&D enterprise that is as vital to UMS sustainability as enrollment.

Goal 3: Generate the knowledge-growing workforce required for Maine's future, expanded R&D enterprise, and innovation economy.

Metric: 50% of adults in Maine have postsecondary education credentials that enable their participation in the future R&D workplace by 2025.

Milestones

- Every student within the UMS has opportunities to engage significantly in research, innovation, and/or creation of knowledge experiences beginning in fall 2020.
- The number of funded doctoral students within UMS in high-demand areas to bolster the scientific workforce in Maine and beyond will increase by 20% by fall 2025.
- UMS-wide workforce training and recruitment pathway programs, including student internships, co-ops, and fellowships are in place statewide and with geographic relevance, through partnerships with Maine businesses and industries to address their workforce needs.

Questions?
Ideas? Go to…

https://tinyurl.com/research-dev

UPCOMING DATES:

- BOT at UMM: March 24-25
- JFM Installation/Inauguration: March 25 & March 29
- NECHE Visit: March 31 – April 3, Orono, Machias, and Portland
- UMaine Student Symposium: April 10, Cross Insurance Center, Bangor
- Commencement May 11 (Orono) and May 12 (Machias)
- National Academies of Sciences Visit: May 21 – 22, Orono