

Research and Economic Development Division



FY2024 Annual Report

*Wyoming Relevant
Nationally Competitive
Globally Preeminent*

Table of Contents

1.	<i>Accomplishments</i>	3
2.	<i>REDD Highlights: Expanding Knowledge Enterprise</i>	12
3.	<i>REDD Highlights: Enhancing State-wide Engagement</i>	13
4.	<i>REDD Highlights: Fostering Innovation</i>	14
5.	<i>Research Centers and Institutes</i>	15
6.	<i>Service and Resource Units for the campus and the state</i>	19
7.	<i>Appendix: UW's Innovation and Economic Prosperity Designation Application</i>	25

UW's knowledge enterprise and innovation capabilities have bright days ahead in FY2025 and beyond. The Research and Economic Development Division is catalyzing this transformation through newly established or reimagined units and strategically investing in topics relevant to Wyoming's needs and growth.

1. Accomplishments

The Research and Economic Development Division (REDD) of the University of Wyoming catalyzes expansion of UW's knowledge enterprise (research, service, and innovation), provides experiential learning opportunities for UW students, and fosters research excellence while driving innovation and engagement that supports economic development.

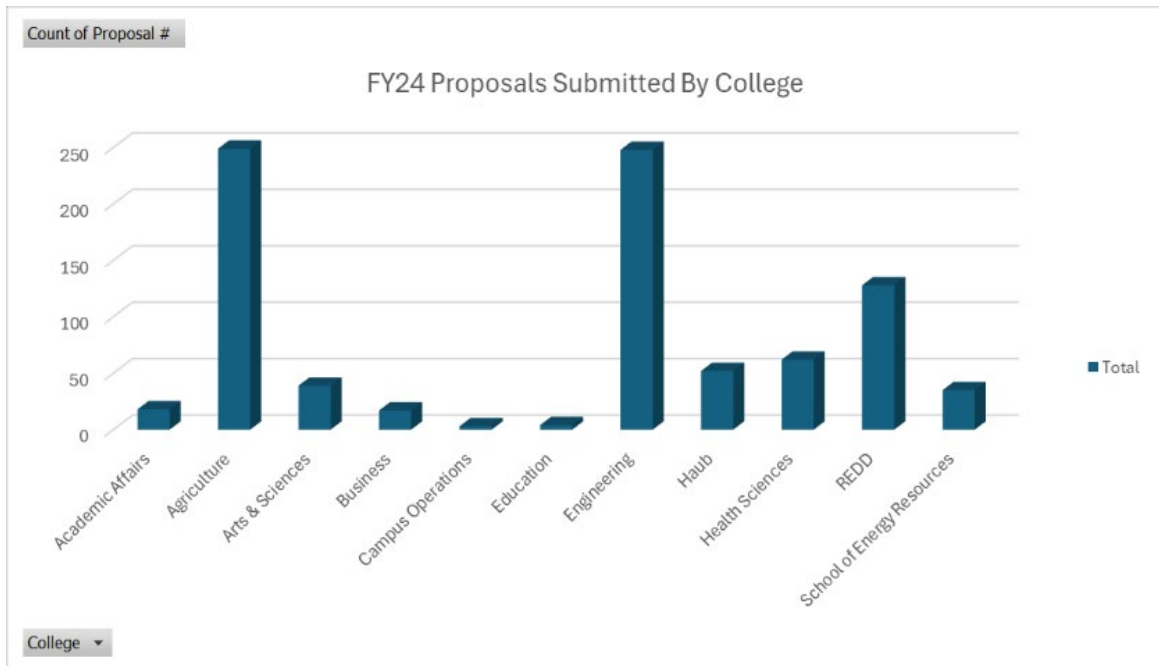
To meet these goals, REDD units function as service organizations (e.g. pre-award services, research compliance, research facilities, research computing resources, etc.), as integrators of multidisciplinary research (university-wide centers and institutes), as catalysts for entrepreneurship and innovation (e.g. Center for Entrepreneurship and Innovation, Technology Transfer Office, etc.), and as technical assistance providers to businesses across the state (e.g. Small Business Development Centers, Manufacturing Works.). These units foster **Wyoming-relevant, nationally competitive, and globally preeminent** programs of research, innovation, and economic development. Highlights of REDD's activities and accomplishments in 2024 are described in this report.

REDD Mission Goals

Goal 1: Increase the size, breadth, effectiveness, and impact of UW's knowledge enterprise.

- **Research Infrastructure:** REDD continued to support multiuser facilities that will serve the campus' needs for conducting state of the art research.
 - The UW Science Institute continued to refine its pay-for-service offerings through its Center for Advanced Scientific Instrumentation and its sophisticated greenhouses.
 - COIFPM developed Equipment Use Policy for the campus-wide access to the equipment in the High Bay facility.
 - REDD also assessed effectiveness and financial sustainability of two facilities – Ecological Biogeochemistry Lab and Ecological Genome Technology Lab. As recommended by the evaluation committee, the biogeochemistry lab was closed because of its overlap with existing other facilities.
- **Seed funding:** REDD provided seed grants for over \$1.5 million directly or through a variety of campus units:
 - Center for Global Studies (\$50,000 total)
 - Wyoming Institute for Humanities Research (\$60,000)
 - Research Committee of Faculty Senate (\$120,000 to be used in FY2025)
 - Board of Trustees Research Excellence Fund (\$200,000)
 - UW Science Institute (Science Initiative funds - \$600,000)
 - UW Institute at the AMK ranch (\$50,000)
 - Vice Provost for Global Engagement (\$100,000 for UW-Cardiff collaborations).

In addition, use-inspired translational research is supported through seed grants from regional (NIH REACH or NSF Innovation Engine) or UW sources (ART grant) ranging from \$15,000 to \$300,000 each.



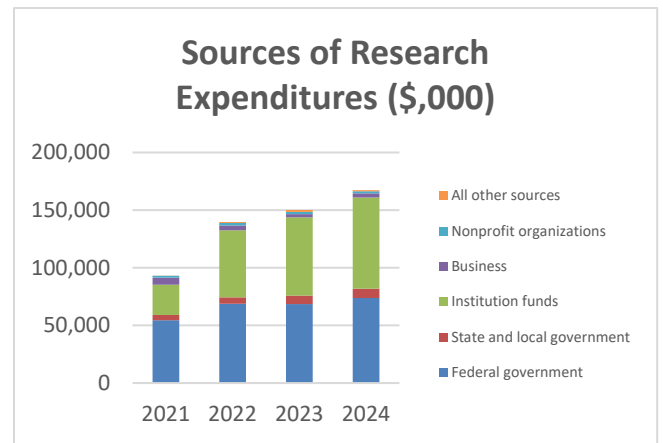
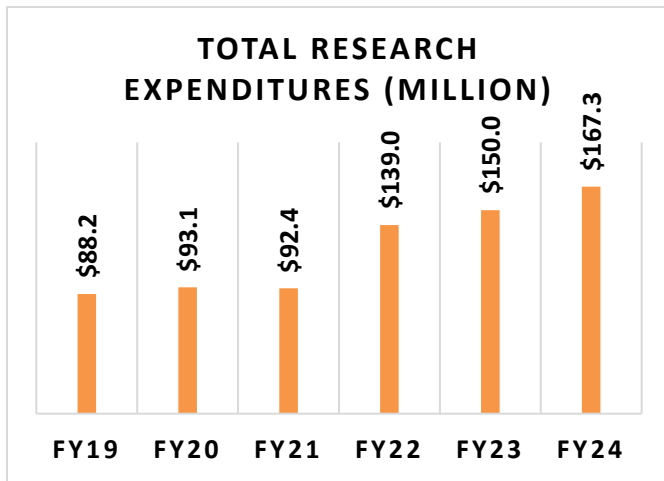
- **Submissions:** To increase opportunities for grant applications, EPSCoR/IDeA and Research Development Office was established to foster grants development activities. The Pre-Award Services Office provided training as well as focused help to faculty while recruiting all positions in the unit. As a result, UW submitted 778 proposals in FY2024, reflecting a 38 percent increase over FY2023. Distribution of proposals in different colleges and schools is shown in the figure.
- **Receipt of Grants:** UW received grants for \$150 million in FY2024 compared to \$120 million in FY2023. These include grants to fund research (67 percent of funds received), instruction (two percent), and public service (31 percent) (including economic development activities). Majority of these funds (56 percent of total) were obtained from Federal grants. UW continued to demonstrate the breadth of its research activities by receiving grants in all of its colleges and schools (Table 1).

Table 1. New Grants in FY2024 in different colleges and schools

College	Total (\$)
College of Agriculture, Life Sciences & Natural Resources	37,912,890
College of Arts & Sciences	5,216,409
College of Business	2,267,772
College of Education	203,000
College of Engineering and Physical Sciences	20,903,147
College of Health Sciences	11,597,667
College of Law	10,500
School of Energy Resources	14,683,928
Haub School of Environment and Natural Resources	3,577,171
School of Computing	1,745,611
REDD Centers, Institutes, and Offices	23,100,854

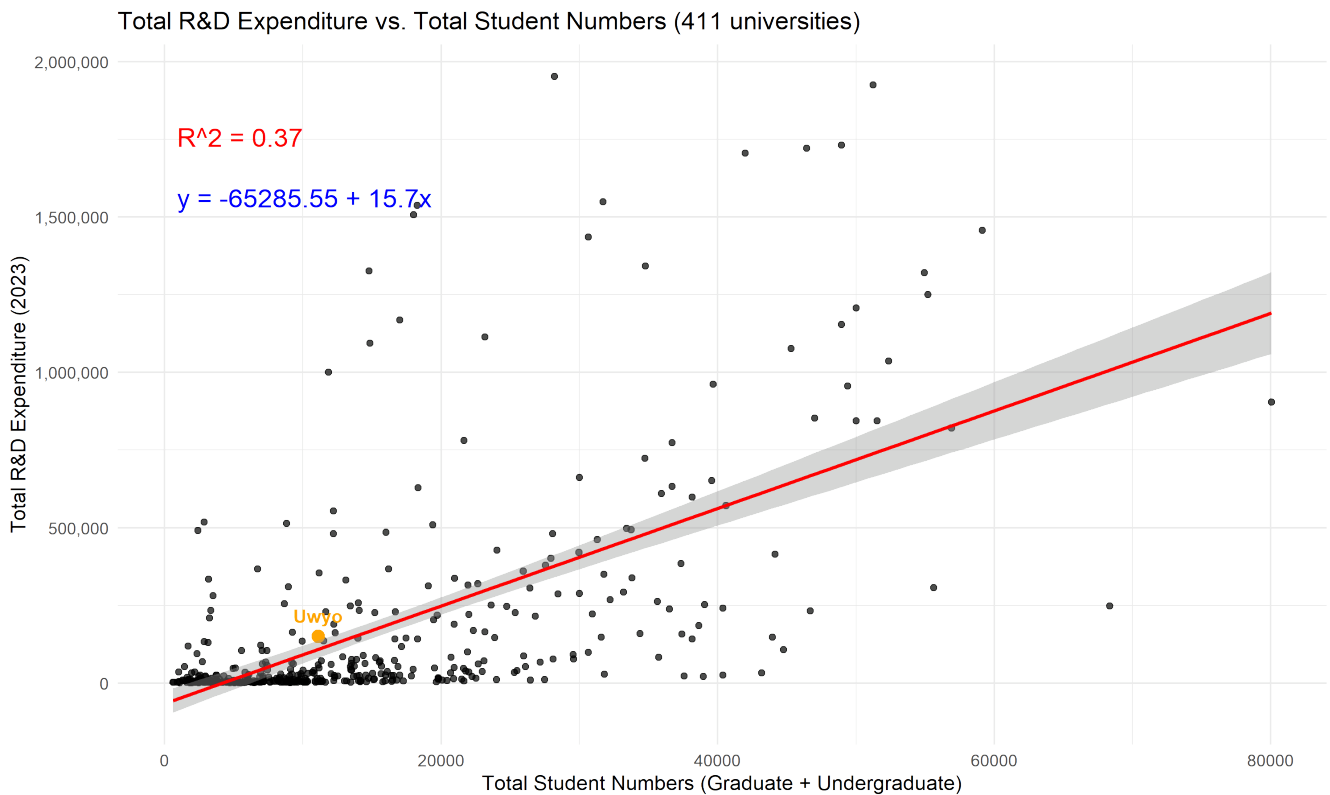
The remaining grants were awarded to Academic Affairs and operational units

- Research and Development Expenditures:** Every year U.S. colleges and universities report data to NSF about their expenditures-for R&D in the fiscal year. The survey collects information on R&D expenditures by field of research and source of funds and gathers information on types of research, expenses, and headcounts of R&D personnel. The information is useful in many statistical analyses as well as in classification of universities (R1, R2, AAU membership, etc.). UW's total R&D expenditures in FY24 increased to \$167 million, the highest level



so far, reflecting UW's research growth as well as more accurate tracking and reporting. In 2024, approximately 44 percent of these expenditures were obtained through federal grants.

A few important trends and observations can be derived from these data. First, UW continues to increase its extramural as well as institutional funds used for research. Second, UW provides better research environment for its students than the national average based on R and D expenditures per student.



Goal 2. Foster economic development by building a vibrant culture of innovation and support at UW, and by providing technical assistance across Wyoming.

- UW is now officially designated as an Innovation and Economic Prosperity (IEP) institution by the Association of Public and Land Grant Universities. This prestigious designation acknowledges public research universities that work with public- and private-sector partners in their respective states and regions to support economic development. A key to success in obtaining this designation was implementing IEP guidelines for self-assessment and planning. This self-study was vital to submission of a compelling IEP application and for UW to identify and focus on priorities that address critical gaps and stakeholder needs. The resulting growth and development plan for UW charts UW's plans for innovation and economic development in the future years (see attached). Such development is performed through a variety of activities, including innovation and entrepreneurship, technology transfer, talent and workforce development, and community development.
- The Office of Industry and Strategic Partnerships (OISP) was established as a joint unit between Research and Economic Development Division and UW Foundation to initiate, establish and enhance engagement with businesses, agencies, private donors, and foundations and is now fully staffed. The office received an EDA University Center program grant aimed to advance access to and referrals between the various services and resources for entrepreneurship, small business, and broader industry, including such resources at UW. Prior to this grant, Wyoming was one of the small number of states without an EDA University Center.
- Coordination and amplification of broader impacts of UW's research activities is a priority for REDD. UW was selected for the 2023 cohort of the Program to Enhance Organizational Research Impact Capacity (ORIC), joining seven other distinguished universities. This initiative is led by the Center for Advancing Research Impact in Society (ARIS). UW team successfully completed this year-long training and developed plans for coordinating and further developing UW's research impacts activities across the campus. In FY2025, EPSCoR/IDeA and Research Development Office will be responsible for implementing the plan.
- A functional and proactive technology transfer office is essential for any research university to increase IP portfolio and revenue generation through commercialization of its IP. The new Deputy Vice President of Research and Innovation has cleared the backlog and implemented streamlined, efficient and productive processes. A \$6 million grant from NSF's Accelerating Research Translation (ART) program established because of the CHIPS and Science Act of 2022.
- The CHIPS and Science Act of 2022 created new opportunities for spurring geographically distributed innovation hubs. To prepare for these new programs, UW formed a faculty committee that made recommendations for reducing barriers and providing incentives for UW faculty to apply for these opportunities. UW has strategically partnered with institutions in other states for applying for these programs.
 - UW is co-PI in the NSF Innovation Engine on Climate Resiliency that covers CO and WY (total funding \$160 million over 10 years). This project was one of the ten innovation engines funded. Of the first years' \$7.5 million budget of the project, UW has received financial support through a variety of means: institutional administrative support (for TTO and HPAIRI), software development grant to SoC, one use-inspired research grant to CEPS and an innovation grant to a startup founded by UW alumni.
 - UW is a participant on another Innovation Engine grant application on quantum information sciences and engineering. The application is led by the University of New Mexico and is currently under review.
 - UW is leading Wyoming's participation in the EDA Tech Hub designated for the nuclear energy industry, with Idaho being the lead/partner state. Various WY agencies and institutions, along with Idaho National Laboratory, ID agencies and institutions of higher education, are coming together in this coalition.

REDD Management Goals for 2024

Goal 1: Staff all units sufficiently and work collaboratively.

In FY2024, REDD focused on building out the infrastructure for support of a growing set of research activities. Incentives were provided for development of new projects, facilitation of collaborations for research, and generation of resources for the building blocks of “Ideas to Impacts” progression seen in premier research universities. The position of Deputy Vice President of Research and Innovation was filled with the appointment of Arundee Pradhan in June of 2024. This position serves to elevate areas within REDD, such as the Technology Transfer Office, to levels of excellence that will meet and exceed expectations of the university and the State of Wyoming. Additional staff include the permanent hires of directors of EPSCoR/IDEA, the UW Institute at AMK Ranch and the Science Institute. A major focus in FY2024 was to recruit all staff positions in the critical service units. Now we have 90% positions filled in, the focus will be shifted on retention of these staff.

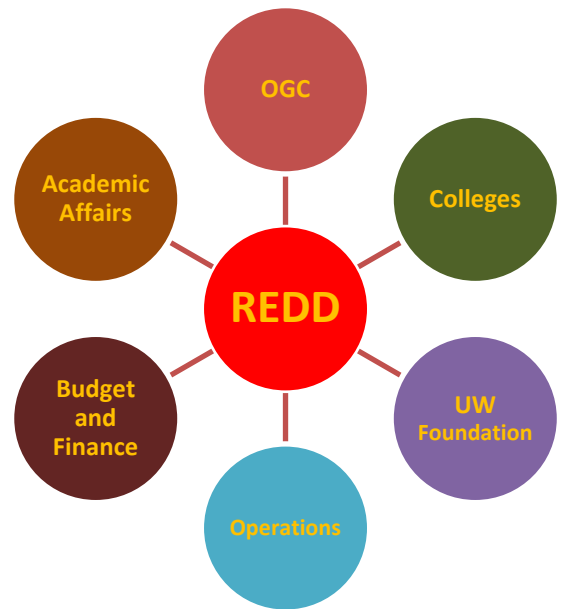
Table 2. Status of staffing levels in different REDD units.

Unit	Total Positions	Filled
70001 – VPRED staff	12	11
70002 - UW AMK Institute	3	3
70005 - TTO	6	2
70007 - MW	7	6
70008 - WYNDD	15	15
70009 - EPSCoR/IDEA Office	8	8
70010 - IMPACT 307	2	2
70013 - UW Science Institute	16	12
70015 - INBRE	4	4
70016 - CEI	2	2
70017 - Core Facilities	3	3
70021 - HPAIRI	2	2
70023 - WIHR	1	1
71002 - Pre-Award Services	10	10
71003 - Compliance	7	7
71004 - ARCC	8	8
71005- WYSAC	25	21
72003 - OISP	3	3
70006 - SBDC	17	17
10502 - COIFPM	15	11

In addition to the sufficient staffing of all units, REDD has intentionally collaborated across different divisions to maximize efficient use of available resources. Examples of such collaborations are listed in Table 3.

Table 3. Examples of collaboration between REDD and other units.

Unit	Collaboration examples
OGC	Hired two Assoc General Counsels in Preaward Services for agreement negotiations
Colleges	Grant Development Managers in CHS, CALSNR, CEPS, and HSENR; Associate Deans for advising on changes CEI Director with official associations with CoB and CEPS
UW Foundation	Jointly funded Office of Industry and Strategic Partnerships
Operations	Unified vision for a safety office at UW
Budget and Finance	Close collaboration regarding data reporting
Academic Affairs	Collaboration regarding HERD reporting



Goal 2: Improve processes for enhanced customer service and efficiency.

As we staff all units that serve the campus, we also wanted to focus on customer service and improvement of processes to bolster customer satisfaction and improve efficiencies. Therefore, REDD provided training to all staff in the campus-serving units of REDD in collaboration with the College of Business. One session covered the basics of customer service and how to identify their needs. The second session taught process improvement strategies to address customer needs. After the training, each unit was expected to improve one process and implement it in FY2025. An example of such process change is given below.

In FY2024, the Agreement Review team in the Pre-Award Services Office, in collaboration with the Office of General Counsel and in consultation with Maria Jenks from the College of Business, initiated a process improvement project on the agreement review process. Implemented in FY2025, this initiative aims to streamline workflows, reduce turnaround times for agreement review and award setup, and enhance support for campus stakeholders. Additionally, the process emphasizes improved transparency and communication with stakeholders to foster clearer expectations and smoother interactions. For standard reviews requiring minimal negotiation, the goal is to complete the process within six business days—from receipt of the award to negotiation, signature, and submission to the Office of Sponsored Programs for account setup in WyoCloud. During the feedback sessions held in November, we heard that the campus has observed improvements in the agreement review and award setup processes over the past year with the implementation of the ROAMWyo system. The team is actively working to identify the most efficient and effective method to measure progress toward this goal within the system.

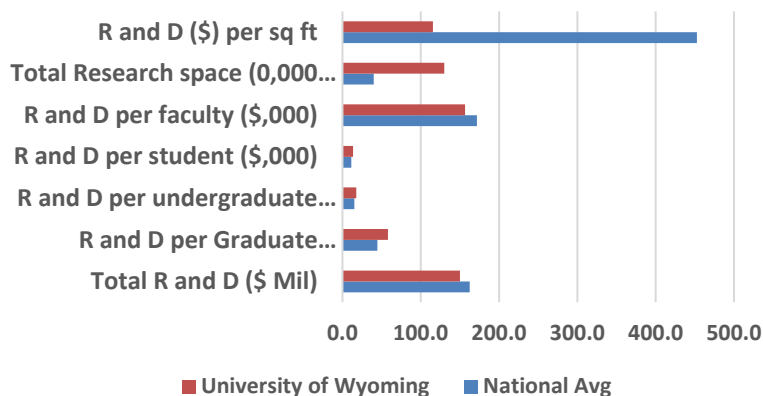
Goals for FY2025

Mission Goal 1: Increase research expenditures and reputation in all disciplines.

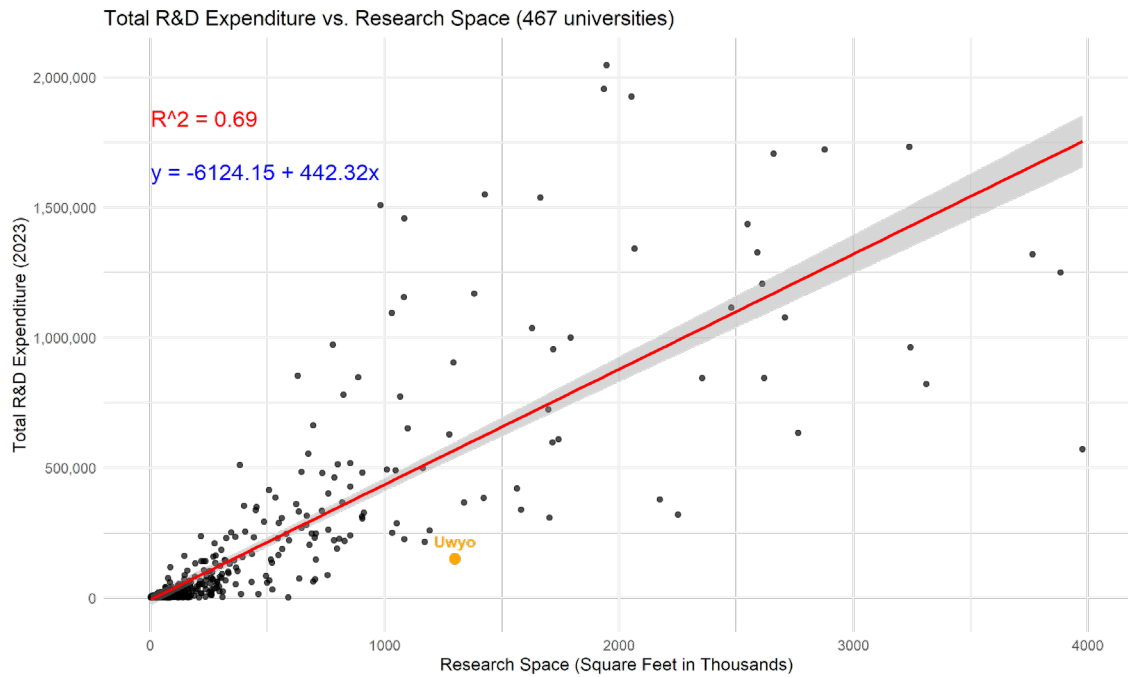
Comparison with national averages identifies some opportunities for growth of the UW research enterprise.

- **Increase research productivity:** Although UW has a higher level of R&D expenditure per student than the national average, the R&D per faculty is about 10 percent lower than the national average. In FY25, REDD will offer strategic seed grant opportunities for strengthening applications, will create grant development workshops for preparing CAREER applications and will provide grant preparation logistics help through college-embedded grant preparation managers.

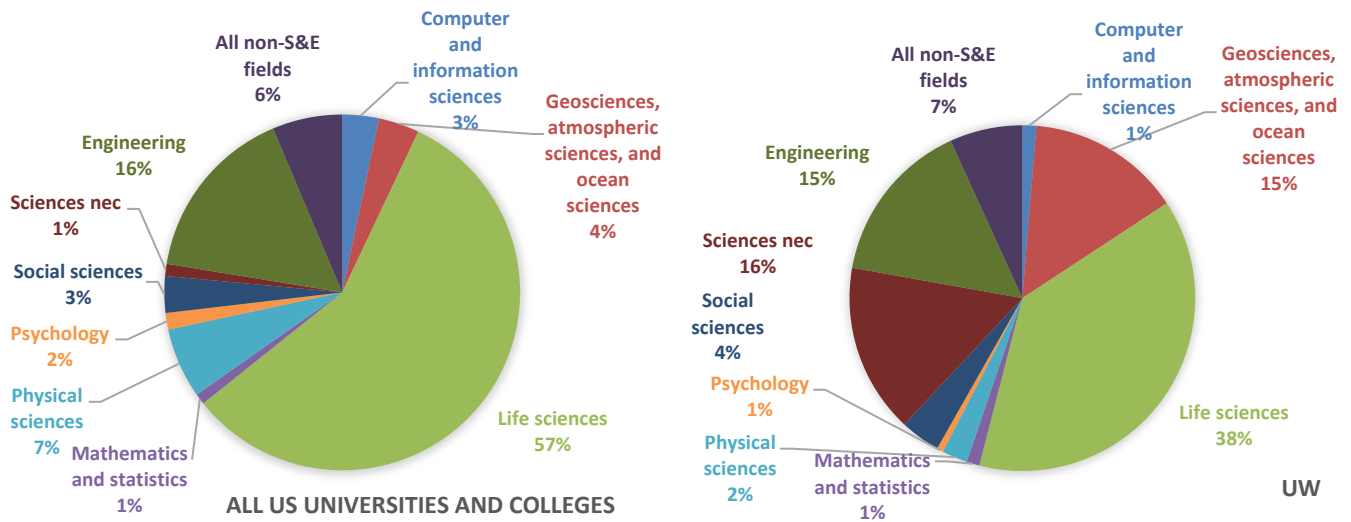
Comparison with FY2023 National Average



The data also shows that UW does not use its research space as effectively as other universities since it has only 26 percent of the national average for R and D expenditures per sq ft of research space. A thoughtful approach to modernize the research space and increase its effectiveness in supporting research expenditures is needed. Also needed is the repair, upgrades, and coordinated management of laboratory animal facilities that fetch high value grants from agencies like NIH and NSF.

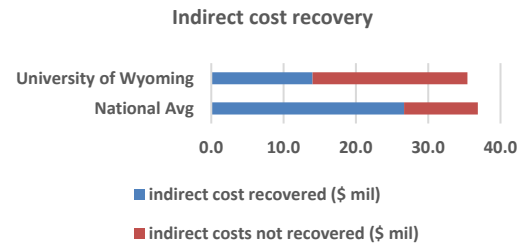


- Foster data-driven team science that addresses convergence:** Future opportunities for obtaining research funding will require UW research to use data-driven approaches, particularly using AI, in addressing societal challenges and economic prosperity opportunities. Based on the recent science nominations by President Trump, it is prudent to assume that the federal agencies will emphasize these research approaches in their priorities. Consequently, UW need to strategically foster AI enabled research in the Wyoming-relevant areas, such as energy, wildlife, and natural resources. About 15 percent of UW's R&D expenditures in FY23 are for research in geosciences and atmospheric sciences (including petroleum engineering). UW is ranked in the top 50 institutions for geosciences R&D expenditures. UW must continue to build on this strength, which is relevant to Wyoming's economic interests in energy, mining, and tourism. Team science projects allow UW to compete for larger center-scale grants.



Note: Life Sciences include agricultural and medical R&D.

- **Assess indirect cost recovery and distribution models:** UW recovers far less (40 percent of allowable indirect costs) indirect costs than the national average (72 percent). It will be important to understand the reasons and identify ways to increase indirect cost recover to ensure financial sustainability of its growing research enterprise. With the current level of indirect cost recovery, it will be difficult to sustain the current rate of increase in UW's research activities.



Mission Goal 2: Foster economic development by building a vibrant innovation support and culture at UW while providing technical assistance across the state of Wyoming.

To enhance the culture of innovation and impacts to serve the state, REDD will continue to implement its Innovation and Economic Prosperity Growth and Improvement Plan (attached to this report). The specific goals for FY2025 include:

- **Construction and completion of the innovation and economic engagement ecosystem:** While completely developing the Center for Entrepreneurship and Innovation, REDD will explore research park potential and implementation as well as UW-specific venture capital opportunities.
- **Enhancement of the entrepreneurship, innovation, and economic engagement culture at UW:** REDD will increase effectiveness of ART programs and enhance the IMPACT307 offerings to encourage innovation activities on campus.
- **Expansion of strategic communication and training to maximize innovation and economic engagement awareness:** Working closely with UW marketing staff, REDD will execute marketing strategies and produce products demonstrating how UW is enhancing UW student experiences through research and innovation as well as how UW is 'present' throughout the state to promote economic prosperity.

Management Goal 1: Continuous process improvements

REDD's service units will continue to monitor progress of current process improvements and will implement new changes to address the customer feedback and needs.

Management Goal 2: Staff professional development and morale

After being sufficiently staffed, it is important to keep the staff engaged, motivated, and retained through professional development and career progress opportunities at UW.

2. REDD Highlights: Expanding Knowledge Enterprise

Over \$2 million	<p>Seed Grant Funds to UW faculty</p> <p>Funding from the Board of Trustees, REDD, SI, and various federal grants resulted in more than \$2 million provided to UW faculty as seed grants.</p>
<p>Increased Submissions</p> <p>Strategic help for preparing applications, additional staff for pre-award services, and increased number of seed grant opportunities resulted in more proposal submissions in FY2024 than in FY2023.</p>	38%
\$150.4 million	<p>Sponsored Funds Received</p> <p>Average annual funds for the research, instruction, or public service projects received during FY19-23 were \$120 million (includes COVID-related projects in FY21)</p>
<p>Total Research Expenditures</p> <p>In FY2023, UW's research expenditures exceeded \$150 million for the first time. UW increased its research expenditures by 11.5% in FY2024, the highest level in its history. Total expenditures include sponsored research expenditures as well as institutional investments in research.</p>	\$167.3 million
5	<p>New CAREER awardees</p> <p>In FY24, five UW faculty received NSF CAREER awards, which represent NSF's most prestigious recognition of early career faculty that demonstrate teacher-scholar leadership by integrating their research and educational activities. In comparison, UW faculty received total of 31 CAREER awards in 27 prior years (1.15 per year).</p>

3. REDD Highlights: Enhancing State-wide Engagement

<p style="text-align: center;">6,736</p>	<p>PreK-12 and citizen outreach The SI Roadshow brought active learning to 6,736 PreK-12 students and senior citizens during 37 outreach and inreach events in schools and other venues, more than doubling our reach over last year.</p>
<p>Active Learning LAMP-trained educators at UW taught 5,763 UW students in active learning classes. The LAMP Fellows program trained 35 instructors from 6 WY institutions of higher education.</p>	<p style="text-align: center;">35</p>
<p style="text-align: center;">46</p>	<p>Wyoming Research Scholars Of 46 undergraduate students conducting research as Wyoming Research Scholars, 24 are from 10 counties in Wyoming. Others come from 11 different states.</p>
<p>New Businesses Started SBDC staff served 1,392 clients, receiving attribution from 54 clients starting new businesses, 39 equity infusion transactions totaling more than \$4.6 million, reporting more than \$135 million in annual sales with \$1.4 million in sales revenue growth, and supporting 1,857 jobs.</p>	<p style="text-align: center;">33</p>
<p style="text-align: center;">\$1.95 million</p>	<p>SBIR/STTR success Wyoming SBIR/STTR Initiative helped Wyoming small businesses receive more than \$1.95 million in capital infusion in their businesses.</p>

4. REDD Highlights: Fostering Innovation

<p style="text-align: center;">10</p>	<p>University start-ups currently active Two new UW start-ups moved into the IMPACT₃₀₇ incubator: (1) MayPall, LLC, co-founded by UW Professor Mark Gomelsky and two UW students Leo Gomelsky and Lucas Wall; and (2) Carbanado Technology, LLC, founded by UW scientist Chooi Kim Lau.</p>
<p>Licensing income Of \$4.8 million in licensing income received by UW to date, 10% was received in FY24. UW signed 3 new commercialization agreements and 8 are in negotiations.</p>	<p style="text-align: center;">\$480,000</p>
<p style="text-align: center;">16</p>	<p>Patents Granted UW is one of the top universities in number of patents issued per 100 faculty members. UW filed 16 patents in 2024.</p>
<p>Industry Research Agreements More than 770 contacts were made with industry, and many discussions are still in progress. Establishment of the Industry and Strategic Partnerships Office and improvements in the agreement process have already yielded results (15 industry research agreements in FY24 compared to 5 in FY23).</p>	<p style="text-align: center;">15</p>
<p style="text-align: center;">\$33 million</p>	<p>Industry and Foundation Support Funds from Foundations and Industry either as gifts or grants to UW.</p>

5. Research Centers and Institutes

The VP for Research and Economic Development oversees the multidisciplinary institutes and centers as well as creation of new research teams and development of new applications. As such, seed grants for faculty-driven strategically important projects are a priority for VPRED.

UW Science Institute

Based on the report of the SI2025 committee (posted at <https://www.uwyo.edu/research/statistics/index.html>), UW established the Science Institute to manage the UW Top Tier Science Initiative and its programs. The Science Institute catalyzes convergence of physical, social, and biological sciences, engineering, humanities, and computing to address Wyoming's needs through transformative research, engagement, and experiential learning. It is expected that the UW Science Institute will be fully operational in FY25 under leadership of its newly appointed Director Professor Jay Gatlin. The Institute currently contains two permanent centers (one for education and engagement activities and other for instrumentation) and five thematic centers (Controlled Environment Agriculture, Energy Materials, Quantum Information Sciences and Engineering, Wildlife and Technology, and Rural Resilience). The Institute budget includes Science Initiative funding, many federal and private grants and support from REDD for core functions. The Science Initiative annual report is presented to the Board of Trustees in their January meeting and contains detailed description of accomplishments.

High Plains American Indian Research Institute (HPAIRI)


HPAIRI is an entity that tribes and scholars can access and utilize both tribally driven projects and UW-conducted research that pertains to Native American people, their lands, and resources. HPAIRI staff is located both on campus and on the Wind River Indian Reservation. HPAIRI has continued to play a critical role in many institutional grants to UW, including WY-ACT, the NSF EPSCoR Track 1 Project and CO-WY Innovation Engine.

- *WY-Anticipating Climate Transitions (WY-ACT)*: in this large institutional grant, HPAIRI facilitated coproduction of knowledge on the Wind River Indian Reservation by bringing in key organizations on the reservation to the table. These include Tribal Fish and Game, Tribal Water Engineers Office, WRTBI Crow Creek Stream Restoration, Central Wyoming College, Greater Yellowstone Coalition, and Homeland Security staff on the reservation. Based on these coproduction events, data will be collected on streams on the reservation.
- *CIRCLES Alliance* is funded by NSF to support a consortium in the mountain west and great plains region to coordinate research endeavors on tribal lands. In FY24, HPAIRI facilitated the CIRCLES Alliance meeting on the Wind River Reservation. It also planned a K12 language and culture workshop which will be held in FY25.
- DOE WyoTCH grant includes a key role for HPAIRI in connecting the grant activities to the needs of the reservation. In 24, HPAIRI worked with SER in organizing Indian Energy Summit.
- USDA/NIFA funded New Beginning for Tribal Students engaged 27 tribal students in collaboration with Central Wyoming Community College.
- In FY2024, HPAIRI supported two graduate students and placed five undergraduate students in internships on the reservation.

UW Institute at the AMK Ranch

The University of Wyoming Institute at the AMK Ranch is a cooperative effort between the University of Wyoming and the National Park Service. Headquartered on the University of Wyoming campus in Laramie, the UW Institute at AMK Ranch promotes multidisciplinary research in the Yellowstone-Teton area of Rocky Mountains. The Institute operates a field research station at AMK Ranch in Grand Teton National Park, which is open from mid-May through mid-October.

Key activities and accomplishments of the AMK ranch are listed below:

- The field station remained open for full season (June 15 through September 30), hosting researchers, courses, and conferences, including over 2200 user-nights by the UW community and an additional 800+ user-nights by scholars from around the country and world.
- The Harlow summer seminar series included 8 events with 620 in-person attendees and many more watching seminars after they were posted online. Seminars included talks by UW faculty and their collaborators on a variety of topics.
- In partnership with Grand Teton National Park, the AMK Institute awarded 12 small grants to seed new research in the region on diverse topics including sagebrush restoration, interactions between bison and ungulates, native mussel conservation, squirrel effects on biodiversity, tectonic conditions in the Tetons, and forest ecology.
- A Forest GEO plot supported by REDD will connect forest research in the GYE to a worldwide network of studies enhancing both local decision-making regarding forest health with implications for wildlife and tourism as well as contributing to a global understanding of changing forest dynamics. REDD also supported a successful Fall 2024 deployment of a SAGE node as part of a larger network of sensors that, in combination with edge computing and AU will help address issues of relevance to the GYE. 
- The UW Board of Trustees Research Excellence Fund provided seed grant funding for a new interdisciplinary project studying ecological networks and ecosystem resilience in the GYE. This work, based at the AMK Ranch generated preliminary data that will be used to obtain extramural funding to support the long-term research at the AMK ranch.

Center of Innovation for Flow Through Porous Media (COIFPM)

COIFPM is the world leader in research, development, and practical implementation of novel breakthrough technologies for extraction of oil and gas and geo-storage of greenhouse gases. It is arguably the world's largest experimental and computational research center focused on flow through porous media problems with applications primarily in oil and gas recovery, carbon utilization and storage, and hydrogen storage. The facility provides imaging and flow capabilities at atomic, nano, micro, and macro scales. Furthermore, it establishes a massive capacity for users to conduct numerous studies in parallel. In 2024, COIFPM continued to excel in training a large group of graduate students (~25 Ph.D. students at a steady state level) in projects that merge academic and industrial interests in areas critical to Wyoming's economy. The major research agreements worth \$65 million were negotiated in FY24 with ThermoFisher Scientific and ACUEnergy. In addition, the center began implementation the first phase of Wyoming Gas Injection Initiative with \$25 million of state funds to be matched by equal funding from oil industry. COIFPM remains a high research activity unit with more than \$7 million annually in research expenditures.

Wyoming Institute for Humanities Research (WIHR)

The Wyoming Institute for Humanities Research strives to be an engine for producing interdisciplinary research in the humanities; a community for faculty, students, and the public; and a model of democratic education fit for our land-grant university. WIHR started reporting to VPRED from FY2024. In this year, WIHR continued its activities:

- **Humanities Research Group:** WIHR awards fellowships for its Humanities Research Group program to about 6 faculty members. Fellows work together in weekly meetings, in which they work on publication, performance, exhibition, or an external grant or fellowship proposal for submission within twelve months of the receipt of the fellowship.
- **Democracy Lab:** This WIHR program gathers an interdisciplinary and intergenerational team of people (faculty, students, and community members) committed to the work of improving the quality of democracy and equality in our state, the nation, and the world. Their projects lead to tangible products.

- **Events:** WIHR primarily co-sponsored various humanities-related events organized by other groups on campus.

In 2024, WIHR underwent self-study and a review by a committee of external and internal experts. Based on their recommendations, WIHR will be reimaged to invest in all faculty across the campus, to foster areas of excellence where UW can make unique contributions, and to position UW as a globally preeminent and nationally competitive place for Wyoming-relevant topics.

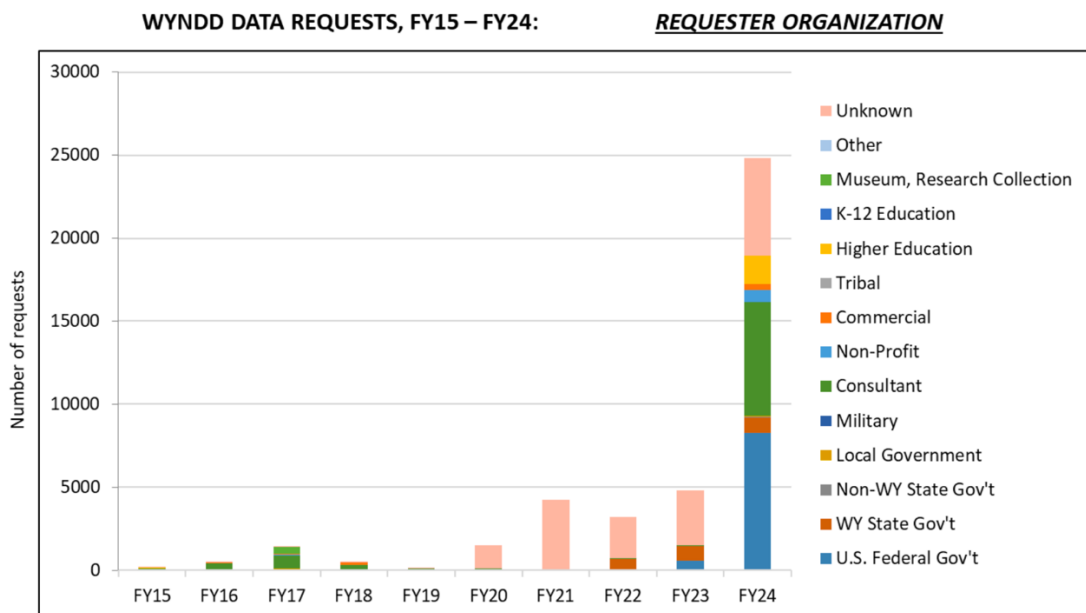
Wyoming Natural Diversity Database (WYNDD)

The Wyoming Natural Diversity Database (WYNDD) is a service and research unit of the University of Wyoming that maintains a comprehensive database on the distribution and ecology of rare plants, rare animals, and important plant communities in Wyoming. WYNDD distributes this information upon request under the philosophy that the best decisions regarding natural resources will be made only when everyone has access to complete and current scientific data. The demand for data from WYNDD continues to increase. WYNDD employed 16 staff and research faculty and train 11 graduate students and 14 undergraduate students. Through 50 externally funded research projects, WYNDD added 624.7 thousand observations to its database in FY24.

Wyoming Survey & Analysis Center (WYSAC)

WYSAC seeks to provide clear, accurate, and useful information to decision-makers through applied social research, scientific polling, information technology services, and rigorous program evaluation. As such, WYSAC conducts research for government agencies, educational institutions, and other entities in Wyoming and beyond. WYSAC currently employs 25 full-time faculty and staff, one GA, and roughly 65 hourly-non-benefited research aides to accomplish our research efforts. WYSAC's total operational and research expenditures for FY 2024 were approximately \$3,532,383 funded entirely from sponsored projects, associated Indirect Costs, and Project Residuals. Ongoing or completed sponsored projects in FY 2024 represent a total of \$4,546,289 in external funding secured by our research faculty. WYSAC performed work on 52 different projects for sponsors during the year. The sponsors include 52 non-federal agencies. Non-federal agencies included six Wyoming state agencies and seven NPOs with the remainder as out-of-state organizations and out-of-state state agencies. In FY2024, WYSAC published 21 project reports on a variety of topics including rural health, political beliefs, environmental inclinations, and social issues

https://wysac.uwyo.edu/wysac/category/projects/?doing_wp_cron=1736138234.0335569381713867187500 .



Wyoming Institutional Center Grants

INBRE

The Wyoming IDeA Networks for Biomedical Excellence (INBRE) Program is funded by the National Institutes for Health. The INBRE program funds statewide networks of higher education and research institutions in each IDeA-state and Puerto Rico to build biomedical research capacity through support for faculty research and mentoring, student participation in research, and research infrastructure enhancement at network institutions. The Wyoming INBRE works collaboratively with all community colleges in Wyoming to advance opportunities for biomedical research experiences in all institutions of higher education in Wyoming. During FY2024, INBRE provided research experiences for dozens of undergraduate students at UW and WY Community Colleges and supported research activities and infrastructure at UW as well as at every community college in the state.

COBRE

Wyoming Sensory Biology Center (SBC) is a phase II (P2o) Center of Biomedical Research Excellence program (COBRE) funded by the National Institute of General Medical Sciences (NIGMS) of the National Institutes of Health (NIH). The primary mission of the SBC is to foster and conduct high-quality scientific research that advances the understanding of our sensory systems and disorders related to them.

Wyoming NSF EPSCoR Track 1

The NSF EPSCoR Track 1 grant and associated programs have helped move Wyoming along the path of research and excellence by supporting the State's research endeavors. The current \$20 million project, the Wyoming Anticipating Climate Transitions, or WY-ACT, addresses the ecological and socioeconomic consequences of changes in water resources. The project will substantially augment capabilities for refining and applying local- and regional-scale models collaboratively developed with stakeholders that address scenarios related to abrupt shifts in water availability. This co-production of knowledge is a unique component of this effort. A significant part of this research is performed at the AMK ranch and adjacent areas.

6. Service and Resource Units for the Campus and the State

NCAR Wyoming Supercomputing Center (NWSC)

The NCAR Wyoming Supercomputing Center (NWSC) represents a collaboration between NCAR and UW. Through this center, 320 million core hours of the [Derecho System](#) are available for UW-led projects in the atmospheric, earth system, geological, other NSF-supported sciences, and science areas of interest to Wyoming. The University of Wyoming compute time allocation on Derecho increased to 320 million CPU Core Hours per year from 160 million CPU Core Hours per year on the Cheyenne Supercomputer, and an additional 320,000 GPU Node hours per year is also available for UW faculty and students for General Purpose Graphical Processing Unit (GPGPU) computations. Derecho Supercomputer hardware, consisting of 420 NVIDIA A100 GPUs, is ideally suited for UW faculty and students researching AI in addition to HPC research. In FY2024, the focus was to facilitate use of the new Derecho computer through faculty training as well as to provide opportunities for broad use (not just geoscience and atmospheric sciences) and dedicated use (Derecho Professorship).

- A total of 69.50 million CPU core hours on NWSC-2 (Cheyenne) were allotted to nine projects in July 2023 for three years. These projects were transitioned onto Derecho in November 2023.
- A total of 235.22 million CPU core hours and 110,000 GPU Node hours on NWSC-3 (Derecho) were allotted to six projects in June 2024.
- Small Allocations (CPU Core hours 1.0 million or less): Thirteen small allocation research projects were approved for a total of 10.0 million CPU core hours.
- So far 10 Derecho professorships have been awarded, with a total compute time allocation of 39.25 million CPU core hours.
- To support several external grant proposals submitted by UW faculty from January 1, 2024, we have committed to provide a total compute time of 198 million CPU core hours per year for the next three years on the Derecho Supercomputer.

Since most of the three-year large allocation projects are in their first year of allocations, and also due to transitioning from Cheyenne to Derecho, the total usage of the allocated CPU core hours is small. We anticipate the rate of usage will ramp up and increase significantly in the second and third years. The request for GPU compute time on Derecho is small compared to CPU core hour requests due to all the large projects do not need GPUs since their research focus is not on AI but HPC.

Advanced Research Computing Center (ARCC)

ARCC is the primary research computing facility for the University of Wyoming. ARCC provides centralized scientific computing resources, including HPC and research storage. ARCC Beartooth Cluster contains old hardware from previous Moran and Teton Clusters and can provide 130 million CPU Core Hours. This facility is often used by faculty for obtaining preliminary results for the projects that migrate to larger use on NWSC. In FY24, Wyoming legislature provided \$5 million for updating and upgrading the cluster. The new clusters (Medicine Bow) were purchased and installed by Summer 2024. The Medicine Bow (MB) Cluster, the upgrade to the Beartooth Cluster, was commissioned and went online on June 1st, 2024. The MB cluster consists of a significantly different and advanced hardware architecture based on the heterogeneous architecture consisting of 25 Homogenous CPU Compute nodes with 19 Heterogenous GPU nodes. The 19 Heterogenous nodes host **48 H100, 40 L40, and 64 A30 GPUs**. A total of 152 NVIDIA GPUs are available for UW faculty and students for computational research. The H100 GPUs are the latest commercially

available GPUs. The Medicine Bow cluster is a 2.10 petaflop cluster. The Medicine Bow cluster will eventually replace the Beartooth cluster. This new cluster, along with recent hiring of computing and computer science faculty will increase the use of ARCC.

- ARCC staff have conducted a total of twelve training workshops in FY2024. The details of these workshops are available at <https://support.pathfinder.arcc.uwyo.edu/Workshops-2024.xlsx>
- A total of 127 projects involving 529 UW users are currently using the Medicine Bow cluster. In the first half year, 61.5 percent of the core capacity of ARCC's new cluster is being used.
- In addition to user support, system administration, and hardware maintenance of all the compute and storage clusters, ARCC provides project and specialized service support to various UW entities.
- UW faculty have invested ~\$600 thousand in the ARCC for additional hardware resources and reserved utilization on the Medicine Bow cluster.

Research Development and EPSCoR/IDeA Office

The Research Development and EPSCoR-IDeA Office was established to provide additional research development support on campus, from finding opportunities to helping create interdisciplinary teams to providing professional development opportunities and assisting with proposal development, all to enhance research opportunities and success in Wyoming. In addition, Research Development serves as a centralized office for EPSCoR-IDeA, limited submission, and REDD seed grant opportunities on campus and throughout the state.

Over the past year, the unit hired necessary staff to provide research development support across campus and to develop relationships within the state. Protocols and procedures have been developed for limited submission, EPSCoR-IDeA, and REDD seed grant opportunities. Protocols and procedures were also created for assisting with Medicine Bow National Park research permits. The RDO office was involved in planning and developing several events on campus, including Undergraduate Research and Inquiry Day, a GRFP graduate student workshop, RDO Open House, as well as an Early Career Seminar series for new faculty, all of which will continue into the next year. We assisted with several workshops on campus as well, including the NSF EPSCoR BioSens conference in July, the NSF Four Corners Alliance workshop, and the Grant Writing Seminar taking place this semester. In the fall of 2024, the unit hosted two PIVOT RP training webinars for faculty – one focused on STEM faculty and one focused on Arts & Humanities faculty to help in identification of opportunities. EPSCoR is engaged in discussions with faculty at LCCC about submitting an NSF E-CORE proposal in July that would focus on building resources to support STEM education, research opportunities, and workforce development at the community colleges and UW.

Office of Industry and Strategic Partnerships (OISP)

To coordinate campus wide activities and increase industry collaborations and strategic partnerships with community colleges and local organizations, the new Office of Industry & Strategic Partnerships (OISP) was established with staff from REDD and the UW Foundation. OISP staffing and infrastructure is being constructed to enhance UW's research and economic development interactions with corporations and small industries, local governments, non- governmental organizations, and education communities. The office also coordinates UW participation in economic development efforts including Wyoming Innovation Partnerships, CO-WY Climate Resiliency Innovation Engine, and ID-WY Nuclear Technology Hub. It also houses and implements the EDA funded University Center.

Total Number of Companies that Engaged in FY24: 815

- OSP contracts: 26
- Non-gift research support: 92
- Companies that gave in FY 2024: 716
- Total dollars engaged by companies in FY 2024: \$16,754,070.44

- OSP contracts: \$6,314,084.55
- Non-gift research support: \$1,660,507.16
- Dollars given in FY 2024: \$8,779,478.73
- Total number of non-industry partnership contacts engaged externally in FY24: 577
- Partnerships/collaborations established (via agreement, letter, grant application, program, project, event): 42

Office of Research Integrity and Compliance

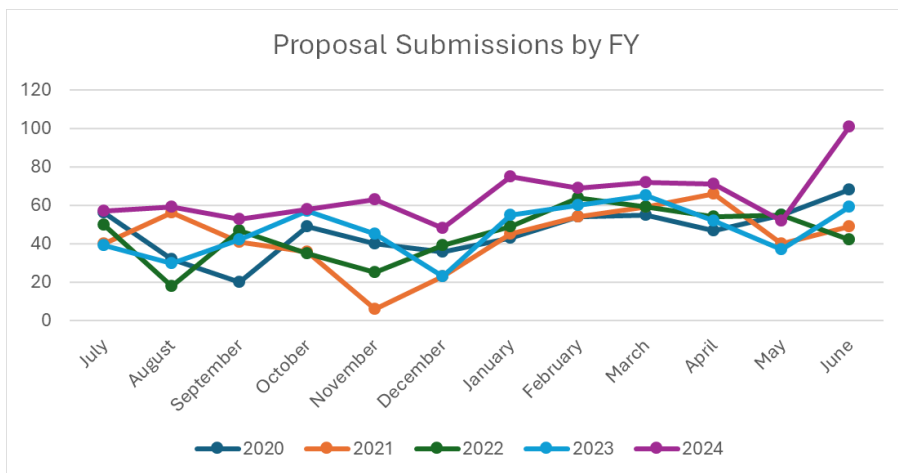
This fiscal year, the Office of Research Integrity and Compliance implemented several strategic process improvements, enhancing efficiency and service across key areas such as Animal Research, Human Subjects Research, Responsible Conduct of Research (RCR), Conflict of Interest and Commitment (COI/COC), Radiation Safety, and Biological Safety. Notably, the introduction of workflow optimization measures in animal research protocols significantly reduced protocol approval times by over 40 percent. Key accomplishments in human subjects research include the successful launch of the ROAMWyo Human Ethics module, resulting in reduced review times and improved user experience.

The office also strengthened compliance by rolling out new training programs and implementing new policies, systems, and procedures for COI and COC reporting for the entire university. In radiation safety, leadership and regulatory innovations marked significant milestones, such as the creation of new permit classifications and the successful transfer of special nuclear material. Finally, the approval of the Animal Biosafety Level 3 research facility at the Wyoming State Veterinary Laboratory further enhances the research infrastructure at UW opening the doors to new funding opportunities. These achievements underscore our commitment to regulatory excellence, streamlined processes, and proactive training initiatives in support of research integrity at UW.

Pre-Award Services Office

Staffing: At the end of FY2024 the Pre-Award Services team had eight full-time employees (FTEs) and two part-time interns. Two Pre-Award Interns (students) were hired to assist the Pre-Award Office to help provide additional support.

Proposal Submissions: In FY2024, the Pre-Award team submitted 778 proposals, reflecting a 37.94 percent increase over FY2023. June 2024 was the highest submission month, with 101 proposals, representing 13 percent of the total annual submissions. This was the Office’s first full fiscal year utilizing the ROAMWyo Sponsored Projects module, which contributed to better proposal data than in previous years.



Core Facilities

REDD manages several multiuser core facilities that provide service to researchers at UW and outside in conducting specialized assays. These are essential for maintaining and enhancing the research enterprise at UW. To streamline operation of core facilities across the campus, a committee of the faculty and facility directors was convened to make recommendations, which will be implemented in FY2025. In FY24, two of the facilities were evaluated by a committee of experts. Based on their recommendations, one facility (Ecological Biogeochemistry Lab) was closed since the

services were already being provided by other facilities on the campus and the facility was not economically sustainable. All user facilities are expected to recover their costs from user fees or dedicated state support (if established as part of an appropriation as in case of SI supported facilities).

Technology Transfer Office

The Technology Transfer Office supports UW faculty and scientists in translating their research to societal use through the protection, marketing, and ultimate transfer of their intellectual property to industry. In FY2023, the Technology Transfer Office (TTO) lost staff members, including its director. To facilitate transition to a reimagined TTO, interim director role and other services were contracted. TTO has been in the process of restructuring since April 2023, creating a solid foundation for the TTO and anticipated growth of the research enterprise as the University achieves R1 status. Major accomplishments are in the table below.

Table 4. Matrix for TTO outputs

Fiscal Year	FY18	FY19	FY20	FY21	FY22*	FY23	FY24
TTO Metrics							
Invention Disclosures	37	30	45	21	27	40	32
U.S. Patent Applications Filed*	58	32	14	18	27	33	39
U.S. Patents Granted	7	11	10	14	13	17	16
Total Licenses and Options Executed	0	1	2	0	1	0	2
New Startups Formed	0	0	2	0	-	1	1
Industry Sponsored Agreements Facilitated**					-	5	15
CDA's Executed***	65	92	37	11	2	56	80
MTA's Executed	40	36	20	0	0	~70	58

These metrics reflect the data that is reportable to AUTM as well as additional metrics that are relevant to the University of Wyoming

Small Business Development Center Network (SBDC and related services)

The Wyoming SBDC Network is a partnership among UW, the Wyoming Business Council, and the U.S. Small Business Administration offering business expertise and technical assistance to help Wyoming's small businesses start, grow, reinvent, or exit. Wyoming Small Business Development Center Network provides no-cost, full-service, customized small business advising for all stages of the business lifecycle, no matter the industry.

- Eleven Wyoming SBDC Network podcast episodes launched during FY24 featuring training topics, discussions with leaders, and conversations with small business owners.
- Seventeen webinars (Nine under Cybersecurity, Five under Innovation Funding and Three under Marketing) were recorded for anytime viewing and two new biz tips were added to our library this
- In collaboration with the Small Business Administration, 15 "The Inside Scoop: How to Get Your First Small Business Loan Request Approved" sessions were held between January-May in fifteen different communities across the state.
- A record number of registrants /attendees (60 registrants, 36 attendees) for two in-person, Start Your Own Business workshops held at the Natrona County Public Library in January and then in March.
- Hosted open house events in nearly every SBDC region in the state to celebrate National SBDC Day on March 20. Clients and stakeholders were invited to attend, network, and engage with SBDC staff and advisors.
- Wrapped up two supplemental programs, the SBA Community Navigator Pilot Program (ended May 31) and

the SBA Portable Assistance Program (ended April 30). See complete award period accomplishments, activities and final metrics under the supplemental programs.

Apex Accelerator (formerly PTAC) Achievements include:

- Held 21 training events
- Held four reportable (promoted/attended/client and/or stakeholder participation) events
- APEX clients were awarded a total of \$72,257,787 in combined Wyoming state and federal contracts.
 - Of these contracting dollars, \$13,153,005 was awarded to HUBZone certified firms, \$9,507,906 to Service Disabled Veteran Owned firms, and \$13,047,444 to certified Woman Owned Small Businesses.
- Shifted to the Department of Defense's Office of Small Business Programs as new federal funder.
- Hosted the Government Contracting Summit in partnership with the Wyoming SBA District Office.

Manufacturing Works

As Wyoming's Center in the National Institute of Standards and Technology (NIST)'s national manufacturing extension partnership network, Manufacturing Works assists Wyoming manufacturers, producers, and entrepreneurs in growing their revenues, increasing their productivity and performance, and strengthening their global competitiveness. Manufacturing Works tailors its services to meet the critical needs of Wyoming manufacturers, ranging from process improvement and workforce development to cybersecurity and supplier scouting. Through collaboration with a wide array of [industry partners](#), Manufacturing Works strategically identifies and solves clients' most pressing issues, enabling them to elevate their business to the next level. 2024 was a transformative year for the Manufacturing Works. It continued to support the state's manufacturers, helping them increase efficiency, adopt advanced technologies, and grow their businesses. The focus is on fostering innovation, driving economic growth, and building a resilient and sustainable manufacturing sector in Wyoming.

Impact307

IMPACT 307 was formulated as a network of innovation-driven business incubators committed to expanding and strengthening Wyoming's entrepreneurial community by providing resources and support for founders/entrepreneurs to thrive. Since its establishment, IMPACT307 and its predecessor assisted in establishment of 243 Wyoming companies. In 2023, IMPACT 307 marked a significant milestone by successfully completing its 38th Start-Up Challenge. In 2024, the unit has undergone major changes that have downsized the number of community offices to two (Casper and Laramie) and is currently rebuilding under a new assistant director hired in the fall of 2024. This downsizing was in response to the end of grant funding from EDA, Wyoming Business Council, and Wyoming Innovation Partnerships; these grants had enabled state-wide expansion of activities. During the transition year and thereafter, UW continues to keep the community engagement and collaborations. For example, a start-up challenge was recently held in Casper by Advance Casper. In collaboration with Advance Casper, UW will invest in the start-up prizes using endowment funds available to IMPACT307.

Center for Entrepreneurship and Innovation (CEI)

CEI fosters entrepreneurship training and culture across UW, including marketing an entrepreneurship minor for all majors, innovation-based courses, and training for students, postdocs, faculty, facilitating interaction with incubators such as Impact307 hubs to build a pipeline of innovators for Wyoming.

- CEI is launching an innovation course in collaboration with the SBDC and the College of Business (ENTR 4910 Innovation Consulting).
- UW chapter of the Collegiate Entrepreneurship Organization (Student Club), which is in process of UW approval for Spring 2025. Approved by the CEO organization as a Wyoming Chapter.

- Creation of the Master Craftsman experiential learning program (in collaboration with Visual Arts within the College of Arts and Sciences). This is a program in which students gain training and hands-on skills from bidding, idea generation, and design coupled with the knowledge of materials and equipment resulting in a tangible product. This is on track for pilot in the spring of 2025.

REDD Marketing and Communications staff

Marketing and Communications for the Research and Economic Development Division was fully staffed for most of FY2024 with two full-time positions filled June 2023-April 2024. One employee left in April, and a search was conducted, and the second position was filled again by June 2024. The office has focused on elevating and maintaining awareness among UW and REDD stakeholders for the ongoing activities and achievements of REDD units. This includes ongoing upgrades and maintenance of the REDD portion of the UWyo.edu website, promoting news via Institutional Marketing, posting news and information on social media (Facebook, Instagram and LinkedIn) and generating stories for distribution via digital, print and video media formats. REDD themed Giving Day campaign created and resulted in three donations, very little promotion or outreach took place. REDD's first Annual Celebration of Excellence in Research and Innovation was held in January 2024, and the marketing team created materials for invite, agenda and presentation materials for the event.

7. Appendix: UW's Innovation and Economic Prosperity Designation Application

University of Wyoming

Economic and Innovation Ecosystem

Growth Plan

1a. Introduction

Wyoming serves as a model for place-based innovation and economic prosperity in rural America. With no town above 60,000 people and state population below 600,000, it is among the most rural states. Its economy is heavily dependent on energy and extractives (half of Wyoming's GDP), tourism and outdoor recreation, and agriculture (primarily ranching). In 2022, the Wyoming Business Council (WBC), the State's economic development agency, contracted Harvard's Growth Lab to assess the state economy and identify gaps. It noted vulnerability in a narrow reliance on energy and mineral exports, and recommended collaboration among our research university, the University of Wyoming (UW), Wyoming's community colleges, communities, and state agencies to diversify and cultivate economic opportunity. One of Wyoming Governor Gordon's key initiatives, Wyoming Innovation Partnership (WIP) supports collaboration among its IHEs to catalyze innovation, workforce development, and economic prosperity. WIP committed \$69 million in FY23-25 for many projects, such as a network of makerspaces, coordinated curricula for workforce development aligned with the industry needs, preparing workforce for the emerging industries in the state, and seed funding for creative economy startups.

UW is Wyoming's only university (8,250 undergraduate enrollment) (1) and serves the dual role of a land-grant university and a flagship university. Thus, UW has a servant leadership role in engaging with the eight community colleges and local economic development organizations in advancing innovation and prosperity. With \$150 million in research expenditures in FY23 (2), UW has a strong research base for robust innovation through acceleration of research translation to commercialization and societal impacts. The resulting growth in technology startups, enhanced technical assistance to the existing industry, stronger connections to businesses, and increased knowledge-based jobs in the state will result in economic prosperity in communities with UW presence. UW President Seidel has made entrepreneurship, innovation, and economic prosperity cornerstones of his UW tenure since his arrival. These are now priorities for Deans as well as Vice Presidents (VPs). Consequently, the last four years were a time of unprecedented changes and new opportunities. President Seidel has marshalled UW resources, coordinated with key stakeholders, assembled statewide partnerships, and paved a path towards an inclusive and innovative ecosystem working towards economic prosperity and stronger communities.

UW's new Strategic Plan (3) integrates innovation and economic development activities throughout its goals of student success, faculty excellence, and state-wide engagement. VP Parag Chitnis is responsible for the Research and Economic Development Division (REDD) which includes 21 offices, centers, and institutes, including Small Business Development Center (SBDC) network, Manufacturing Works (MW), Technology Transfer Office (TTO), Center for Entrepreneurship and Innovation (CEI), IMPACT 307, and Office of Industry and Strategic Partnerships (OISP). VP Chitnis leads the Innovation and Economic Prosperity (IEP) designation activities, including self-assessment and implementation of UW's growth and improvement plan. Recent federal grants (EDA's University Centers grant, National Science Foundation's (NSF) Accelerating Research Translation grant, NSF's CO-WY Innovation Engine grant) demonstrate UW's potential for innovation and economic engagement. The IEP self-assessment and plan have allowed UW to identify priorities that address critical gaps and stakeholder needs.

1b. Review of Existing Infrastructure

The UW self-study work, led by REDD in collaboration with relevant campus units, formally kicked off in Fall 2023. President Seidel and REDD VP Chitnis created the taskforce to comprehensively review UW's economic and community engagement profile, incorporating existing reporting and collection of new data to identify goals. The taskforce represented a diverse set of perspectives, expertise, and disciplines ranging from economic development and community engagement to communications and academic units (1).

Self-assessment included two approaches: 1) collect and analyze recent self-studies and reports relevant to IEP designation and 2) conduct more surveys that complete the comprehensive analysis of UW's activities with diverse campus communities as well as external statewide partners.

Assessment of UW economic engagement assets and their effectiveness commenced prior to the formal efforts for IEP designation in Fall 2023. Resource mapping and overall economic development plan were formulated in early 2023, identifying REDD strengths, weaknesses, and capacity in these areas. Building from that momentum, President Seidel and VP Chitnis committed the institution to IEP designation pursuit, carrying out strategic planning sessions in the last quarter of 2023 and in the second quarter of 2024.

Additionally, input/feedback sessions with community stakeholders across the state and surveys created a foundation of data and plans for advancement of UW's economic engagement performance and capacity (2, 3, 4).

The timeline of these strategy and input sessions is as follows:

- May 2023- REDD Communications Plan Development and synthesis of UW economic development strategies
- June 2023- Mapping of University Entrepreneurial Resources Available
- September 2023- Strategic Planning- Incubation and Entrepreneurship Support
- December 2023- REDD Strategic Planning, IEP briefing to the President's cabinet
- February 2024- Sheridan-area Entrepreneurial, Small Business, and Economic Development Stakeholders Feedback Session
- March 2024- Cody-area Stakeholders Feedback Session
- March 2024- Casper-area Stakeholders Feedback Session
- May 2024- Service to Campus Strategic Planning
- July 2024- Process Improvement Strategic Planning, IEP briefing to the President's cabinet as well as the research council (associate deans or deans of colleges and schools)

Survey and Interview Design and Results

In Summer 2024, internal institution-wide survey and external key stakeholder interviews were conducted using the CECE tools. The two-methods approach was chosen to collect quantitative and descriptive information on which strategic and improvement conclusions and plans could be based.

The Wyoming Survey & Analysis Center developed the survey and analyzed the data to assess the current state of UW's economic engagement through all UW employees, to assure largest and widest participation (of UW offices throughout the state). Totalling 41 two-part ranked questions, the survey measured perceived importance placed by UW in specific areas and performance in those areas (footnote, internal survey). The survey questions were categorized by IEP instrument core blocks, scoring with Likert scale 1 to 7, measuring 'not at all important' to very important, and performing 'poorly' to 'very well'.

The survey response rate was 10.9% and received 466/4,273 responses (5). Respondent composition was representative of the distribution of UW employee categories (staff, faculty, administration).

To assess UW's impact across the state, the Association of Public & Land-grant Universities (APLU) IEP external survey tool was adapted into interview format, measuring partner perception of how UW should value/play a role in specific economic engagement activity, and how UW performs in those areas (6). The survey group conducted one-on-one interviews with leaders of nine key stakeholder economic and community engagement organizations and agencies across Wyoming, with whom UW partners on various projects and initiatives and/or represent other agencies and companies that partner with UW: Regional Small Business Association (SBA), Regional Economic Development Administration (EDA), Wyoming Governor's Office, Wyoming Economic Development Association (WEDA), WBC, Wyoming Business Alliance (WBA), Wyoming Community College Commission (WCCC), Wyoming Women's Business Center, and Wyoming Community Foundation (WCF).

High-level internal survey results showed UW should place high importance on all areas measured. The average for all importance scores was 5.7 out of 7. "Performance scores" were lower than "importance scores" on all questions. Performance scores were an overall average of 4.1 out of 7. The Engages and Asserts Institutional Leadership block scored the highest overall and on individual question scoring, demonstrating internal recognition of UW relationships and engagement in state economic growth. "Creates Supportive Culture" was the lowest scoring block, showing the need to better engage and incentivize faculty in economic engagement and improve agreement processes (7).

Interviews revealed comparable results, with elevated levels of statewide stakeholder engagement in economic and research engagement, with a notable increase in commitment to partnerships under the current institutional administration. Clearly communicating programming and points of contact, engagement across internal units, faculty involvement, and user-friendly agreement/contract processes were repeatedly identified as areas to improve (8, 9).

Following the self-study, the taskforce presented to and received feedback from President Seidel, his Cabinet and other campus groups including the Research Council (10). Each group recognized the institution's roles in strengths and weaknesses and endorsed the improvement and collaboration plan and the IEP designation pursuit.

The self-study over the past 14 months comprises of the identification of UW economic engagement strengths, principal improvement areas, and associated action plans. The tools from CECE and their training helped in ensuring that the self-assessment through asset control and surveys lead to a growth and improvement plan that could potentially transform UW's trajectory in economic development.

1c. Economic Engagement Enterprise

Economic engagement at UW is not limited to establishing startups based on research translation. It includes a comprehensive approach to engage internal and external stakeholders to leverage UW resources and provide a coordinated approach to address economic, innovation, and community ecosystem needs.

Community and economic engagement are promoted across research, education, and outreach activities at UW. Key external stakeholders include the community colleges, tribal groups and agencies, and state agencies such as WEDA, WBA, and the WBC. UW leadership has prioritized strengthening relationships with external stakeholders. The internal stakeholders are university faculty, staff, and students and the units/offices across UW interested in or engaged in fostering innovation, community, and economic engagement.

In our self-assessment activity, we identified the key units in REDD and at UW that contribute to economic engagement function.

The Small Business Development Center (SBDC) has nine locations in Wyoming and provides education, consulting, market research reports, classes and webinars, publications, web services, federal procurement (through APEX), federal Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) research dollars, and referrals to related agencies.

Manufacturing Works (MW) supported by NIST's Manufacturing Extension Program and WBC. MW provides broad technical help, engineering solutions, business assistance, marketing assistance, and financial counseling to Wyoming's growing manufacturing industry.

The Center for Business Economic Analysis at UW's College of Business, supports the economic growth and diversification of Wyoming's economy through services to businesses and communities such as amenities valuation, data analytics, economic and fiscal impact, economic modeling and forecasting, and access to faculty across UW.

Innovation WYrkshop provides an experiential learning environment across makerspaces to foster community innovation, creativity, curiosity, and entrepreneurship. These makerspaces are housed at educational institutions, public libraries, or community centers in six communities and through mobile trailers. UW provides oversight, programming, and coordination.

Great Plains Hub of NSF Innovation Corps (I-Corps) provides entrepreneurial training for researchers. The TTO, CEI, and IMPACT 307 described below leverage I-Corps to enhance entrepreneurship capacity.

UW Extension's rural vitality programming is key in aiding community development in all 23 Wyoming counties which have UW Extension offices.

IMPACT 307 has two business incubators (Laramie and Casper) committed to growing and strengthening the entrepreneurial community by providing resources and support for startups to thrive. IMPACT 307 is refocusing on high growth-oriented technology-based companies.

Technology Transfer Office (TTO) supports economic development for Wyoming through transfer of UW intellectual property to startups and established industries. In the last several years, the office underwent staff loss, causing reduced results. With new leadership at UW, TTO is now being restaffed with new vision of market-driven innovation strategy.

The Center of Entrepreneurship and Innovation (CEI) was formed recently to integrate innovation across the campus in collaboration with statewide agencies and organizations and for coordinating entrepreneurial educational activities at UW.

The Office of Industry and Strategic Partnerships (OISP) is a newly formed joint effort between REDD and the UW Foundation (UWF), tasked with developing industry engagements. OISP's goal is to increase industry/partner engagement and with economic, workforce, and educational agencies and organizations.

The Research Development Office (RDO) is focused on helping UW researchers to find funding opportunities and aid in proposal preparation, along with leading EPSCoR programming on campus.

UW is developing a core process for interacting with external stakeholders in a planned and cohesive manner to develop and implement an innovation, entrepreneurship, and community engagement ecosystem. Over the last year, UW has engaged more closely with its external stakeholders at all levels starting with the President, resulting in a better understanding of how it can work with and for them. UW's support of its state-wide initiatives has resulted in several notable achievements. And, as always, there is room for substantial improvements in establishing and fostering relations with external and internal stakeholders that can lead to greater success.

1d. Economic Engagement Planning

With UW's engagement enterprise in place, what challenges UW seeks to address, and how, must be carefully considered. Including the self-study for the IEP designation, UW continuously undertakes learning and growth efforts. Under the leadership with President Seidel and VP Chitnis, there is an ardent desire to build on the research, economic development, innovation, and entrepreneurship ecosystems that currently exist at UW. This is shown by the current UW Strategic Plan that integrates innovation and economic engagement commitments throughout the plan:

- “Prepare students for life and adaptation to a changing and increasingly digital world”
- “Value and reward all teaching, research, extension, engagement, innovation, inclusion, and service contributions to UW's mission and strengthen relationships with external stakeholders”
- “Invest in resources that enhance the health and well-being of the UW community”
- “Support Wyoming's economic and community development using the assets and expertise of all colleges and schools”
- “Enhance UW's connections with and service to the people of Wyoming”

However, challenges also exist. A recent study (April 2024) conducted by the Building State Capacity group at the Harvard Kennedy School identified several challenges to economic engagement in Wyoming and in Laramie (1). These include lack of collaboration, low tax revenues, remoteness, lack of economic diversification, job market mismatches, low diversity and population, culture and mindset, and low population density.

Independently, UW also recognizes these challenges that need to be addressed: low collaboration with local and state agencies, lack of housing in Laramie, lack of diversification of industry in Laramie and Wyoming, development of programs to train its faculty and student entrepreneurs, and access to capital and space for startups.

Going forward, UW's areas of focus for improvement (details in Growth and Improvement Plan) are to complete the internal infrastructure to support entrepreneurship and innovation ecosystems, accelerate culture changes within UW, expand and enhance communication with stakeholders and partners, and to unite these efforts to fully realize an interconnected innovation ecosystem across the state with the University fully engaged in facilitation.

The desire of REDD to engage and overcome the above challenges points to engaging more proactively with communities; industry; and local, state, and federal agencies. These collaborations are vital to the success of UW's efforts throughout Wyoming and are elaborated in the Growth and Improvement Plan.

To this end, UW leaders prioritized strong ties with the WBC, WEDA, WIP, state legislators, and other stakeholders. In addition, UW is actively engaged on two fronts to map the entrepreneurship and innovation ecosystem (in partnership with WBC and WIP) and develop a network of regionwide organizations and investors through IMPACT 307 and the TTO with funding through the Growth Accelerator Fund Competition at the SBA (2).

UW's support of its state-wide initiatives through its units has resulted in several notable achievements (detailed in the Summary of Accomplishments). However, as always, there is room for substantial improvements in establishing and fostering relations with external and internal stakeholders that can lead to greater success. UW is engaged in discussions on how to best implement its strategic goals as there are multiple focus areas that involve units across UW whose responsibilities range from communication,

community engagement, and social impact to economic development, industry engagement, and startups. The intent is to inculcate a holistic approach by UW to engage all stakeholders in Wyoming's economy.

Key REDD units responsible for this are the OISP, TTO, IMPACT 307, the CEI, and the RDO, along with other UW units such as the Office of Community Engagement (OCE) and Institutional Marketing and Communications. These offices will foster and encourage engagement between UW academic and research units and programs with industry, community, and economic development partners.

1e. Promotions and Communication

Key Communication & Planning Stakeholders: Engaging key stakeholders is essential to promoting economic goals. UW’s internal audiences include students—future leaders and innovators, faculty—who drive research and innovation while highlighting and supporting community engagement initiatives. Staff and faculty provide crucial leadership and support in implementing initiatives. UW Trustees provide strategic oversight and guidance, university goal alignment, and extension of program’s reach and impact. Alumni are key ambassadors and supporters, leveraging their networks and resources.

Externally, UW engages with a diverse range of stakeholders. These relationships include routine exchange of programming ideas and formal collaborations that extend services and opportunities in Wyoming. Industry partners align research and education with market needs. Governments at local, state, and federal levels provide funding, policy support, and collaboration opportunities. Not-for-profits and community organizations enhance community impact through partnerships. Collaborations with other institutions of higher education foster knowledge exchange and joint research. The Controlled Environment Agriculture collaboration between the University, community colleges, government, and companies, is generating research, workforce, and student opportunities, with funding from the WBC and Governor’s Office, with all parties promoting the work (1).

Economic Engagement Communication Strategies: UW employs comprehensive methods to communicate and promote economic engagement efforts internally and externally. UW Institutional Marketing and Communications, in collaboration with REDD, manages internal communication strategies. The university website serves as a hub for news, updates, and resources. Regular updates are sent to the campus community through internal newsletters and bulletins, also serving to engage stakeholders about institutional events and meetings. Social media platforms offer broad outreach to the university community, and regularly distributed donor and alumni publications highlight achievements and opportunities.

Externally, communications strategies include distribution of the Annual Report (2), highlighting UW contributions and impact, regular engagement with media outlets (digital media, newspapers, radio, TV). Institutional Marketing and Communications media relations maximizes coverage and audience awareness. Social media reaches a broad external audience with updates and stories, paid advertising promotes key initiatives and events, and community outreach events, such as public lectures and Undergraduate Research and Inquiry Day (3), offer additional public engagement.

Effectively Sharing the Story: Outlined in the Growth and Improvement Plan section, UW commits to effectively sharing its economic engagement story through a comprehensive communication strategy. Recognizing need to continually strengthen communication and connection with community, Institutional Marketing and Communications has coordinated a series of 15 “UW in Your Community” outreach events across Wyoming in which UW team members travel to communities, connecting with local industry, education, and broader community members to share and hear about UW impact on talent, innovation, and place (4). REDD, in collaboration with Institutional Marketing and Communications, regularly publishes media releases to ensure timely updates on economic development news and works with press to communicate UW’s contributions and impact.

Recognizing that UW has fallen behind in communicating innovation and economic engagement activities, REDD took a significant step by creating its own Marketing and Communications group. This group collaborates closely with Institutional Marketing and Communications to amplify internal and external communication efforts. It uses metrics-informed strategies and decision-making to enhance communication

effectiveness, produces in-depth videos, podcasts, and web articles for long-form storytelling, and coordinates social media publications to ensure broader reach and engagement.

REDD is also forming an action committee to address the communication gap found in the self-study. This committee will explore issues in depth developing a comprehensive set of solutions to improve the dissemination of innovation and economic engagement information. Additionally, this year, REDD is starting to publish a regular 16-page section in UWyo Magazine, which appears three times annually and has a distribution of 30,000 subscribers. The first issue of 2025 will feature an edition entirely dedicated to UW innovation and economic development.

This strategic approach ensures UW effectively communicates its economic engagement efforts to and with internal and external stakeholders, enhancing visibility and impact.

1f. Advancing University Engagement Practice

UW's commitment to advancing economic engagement is best characterized by its support of the community of practice with internal and external stakeholders, and active engagement with organizations to share best practices, make connections, and be a catalyst for collaboration.

Key leaders at UW have strong background in growing the research enterprise, engaging in economic development, providing entrepreneurship training, and creating robust workforce development initiatives. This includes President Seidel; VP Parag Chitnis; Deputy VP for Research and Innovation, Arundee Pradhan; Senior Director of Strategic Partnerships, Curtis Biggs, and Director for the CEI, Robert Macy. The latter three positions are newly created and represent UW's commitment to its mission to participate in and develop the entrepreneurial and innovation ecosystem around the institution and across Wyoming.

As a result of this expertise and leadership there is a strong desire to plan and build on the current innovation and entrepreneurship ecosystem that exists at UW. This is evidenced by the five goals in the current UW strategic plan, as outlined in the Economic Engagement Planning section of this application. The UW strategic plan addresses preparing students for a digital world, investing resources in the UW community, supporting Wyoming's economic and community development, enhancing connections, and valuing and rewarding community, economic, and entrepreneurship activities.

UW will build on these commitments and develop strategies to implement its objectives through the creation of a team comprised of representatives from the offices and outside stakeholders engaged in activities that support innovation and community engagement. UW has several groups and committees that already operate in this area (e.g., Associate Deans for Research Council), and in the first year, UW will identify the appropriate group or committee with which to task these activities. In addition, the University has recently created and filled a key position, the Deputy VP for Research and Innovation, that will play a critical role in the establishment and execution of the strategies to achieve the University's objectives (1).

It will also be important to engage with a broader set of organizations that include the community colleges in Wyoming and the cities in which they are located - Sheridan, Rock Springs, Cheyenne, Casper, Riverton, Gillette, Torrington, and Powell to better understand the needs of the communities in which they are located and how the UW can collaborate with the community colleges to address those needs.

Externally, UW is engaged with multiple organizations such as the APLU, AUTM (previously the Association of University Technology Managers), the Association of University Research Parks, Network of Academic Corporate Relations Officers, National Academy of Inventors, University Economic Development Association, and University Industry Demonstration Partnership. Participation in events led by these organizations allows UW to learn and share practices that will enable UW to incorporate best practices in its efforts to develop the entrepreneurial and innovation ecosystems for Wyoming. Representatives from UW now regularly attend and participate in events hosted by these organizations. In addition to the national organizations listed above, UW is also actively engaged with chambers of commerce across Wyoming, WEDA, Ecosystem Builders Leadership Network, Harvard Growth Lab, and the Interagency Working Group – hosted by the state budget office to help obtain grant funding.

Other initiatives at UW include the Presidential Leadership Academy, Presidential Fellows on economic development that provide incentives for UW employees to participate in economic development and community engagement (2).

UW hosts or participates in local and regional events such as the John P. Ellbogen \$50K Entrepreneurship Competition and Entrepreneurial Ecosystem Competition (held annually since 2001), WIP summit, Governor's Business Forum (collaboration with WBA, now being held on UW campus), Hackathons, SBDC related events, and SBIR/STTR webinars.

Successful engagement programs include Library to Business presentations, the Community Navigator Pilot Program, and SBA small business award winners (3,4,5).

2. Summary of Accomplishments

Through the self-study process, UW has achieved accomplishments in three broad areas necessary to develop, foster, and maintain a vibrant and engaged entrepreneurship and innovation ecosystem: Strengthening Place; Fostering Talent, and Creating Strong Foundations for an Effective Ecosystem for Innovation. These accomplishments map to the goals elaborated in the Growth and Improvement Plan.

The self-study included a thorough review of past activities, initiatives, programs, ongoing efforts, conversations with external and internal stakeholders, and connecting with groups across campus and Wyoming. The process provided a holistic assessment method for getting to the heart of the UW's economic and community engagement, development, and impact. Preparing the application for IEP designation showed certain strengths and achievements echoed throughout this undertaking. Some notable accomplishments outlined below are categorized by how they address the needs of the entrepreneurship and innovation ecosystem and how they relate to goals outlined in the Growth and Improvement Plan.

Accomplishment 1. Strengthening Place through Commitment to Engagement and Impact

These accomplishments focus on strengthening the community, entrepreneurship, and innovation ecosystem. UW's continual commitment to engagement and impact shines in its values, partnerships, and efforts of units, that are shaping campus culture, which has been positively received by internal stakeholders. Additionally, external stakeholders agreed that the university had high engagement levels across Wyoming. Some notable accomplishments are:

- UW's successful 2023 application for Carnegie's Foundation's Elective Classification for Community Engagement highlighted this ongoing work across the institution and state (1). (Goal 2)
- Creation of a "roadmap" of best practices to direct community engagement and deepen facilitation and support of engagement. The roadmap identified gaps and allowed UW to develop and implement strategies to address existing gaps through innovative approaches and evaluate the university's community, social, and cultural impact through engagement (2). (Goals 2 and 3)

UW Extension, based out of the College of Agriculture, Life Sciences, and Natural Resources, has offices in each of Wyoming's 23 counties and the Wind River Reservation (3). External stakeholders view Extension as an asset for economic growth. Standout Extension accomplishments include:

- Cent\$ible Nutrition Program, which is focused on making cooking and eating affordable for low-income homes and financial literacy programs for individuals and families as part of UW's Community Development Education Program (4). (Goals 2)
- A strong 4H program that has many technology-based outreach and an interest in integrating entrepreneurship training with their programming.

In 2023 UW reestablished the OCE (formerly known as the Office of Engagement and Outreach) (5). This symbolized UW's continued commitment to engagement and impact statewide. In Spring 2024, OCE hosted the Community-Engaged Faculty Institute (6). The sessions served to educate faculty on integrating experiential and service-learning into the classroom, hosting community partners to share expertise and build relationships. OCE's work is highly regarded and valued by internal stakeholders as it conveys UW's high regard of engagement, fostering a campus culture, and prioritizing impact. A notable and significant result of this effort and relationship-building was:

- A faculty course design that provided students hands-on educational and professional development opportunities supported by regional partners. (Goals 1 and 2)

IMPACT 307, MW, and SBDC have a physical presence throughout the state. For example, IMPACT 307, through a grant from EDA, conducted statewide startup challenges, resulting in 309 startups created over a 3-year period.

This focus connecting internal and external stakeholders, activities to achieve impact, exploring opportunities such as experiential learning and mentorship is an area external stakeholder also saw as a strength. These endeavors contribute to the sentiment expressed by both internal and external stakeholders that UW is a strong collaborator with government, business, and community leaders. Further, there is an increasing awareness and appreciation of UW's support of actionable economic growth priorities in Wyoming communities.

Additionally, UW has a strong record of accomplishment in engaging with communities in other settings. Examples include K-12 Roadshow by UW's Science Initiative that visited over a dozen schools and reached over 2000 students annually (over 4,000 in Fall 2023) (7). Similarly, UW organizes UW in Your Community events once a month that involves UW President, administrators, and local UW students engaging with communities around the state.

Accomplishment 2. Fostering Talent On Campus and Statewide

The themes of talent development and innovation were woven throughout the self-study process and emphasized by stakeholders as assets within the professional and academic arenas. In addition, partnerships with local and state agencies and industry were viewed overall as a strong suit of UW by internal stakeholders (8). UW units such as SBDC, MW, and IMPACT 307 speak directly to talent development and innovation fostered by UW units statewide. Programs, events, and trainings developed by IMPACT 307, SBDC, MW, TTO, and the CEI have been and are delivered across UW and Wyoming through partnerships with local economic development organizations and community colleges.

-Programs through IMPACT 307 and SBDC were spoken of highly by external stakeholders as building blocks of Wyoming's entrepreneurial ecosystem and as a basis for ongoing talent development and innovation opportunities (7, 9, 10). (Goals 1 and 3)

-UW's College of Business endeavors interject talent development and innovation into campus and Wyoming. Its annual John P. Ellbogen \$50K Entrepreneurship Competition, now on its 24th year, advances these values through encouraging community college and university students to formulate original business ventures and work with a network of organizations, entrepreneurs, and community investors (11). (Goals 1 and 3)

-The College of Business' SparkTank is another innovative program pushing professional, academic development, and community engagement. Comprised of students from the college's Ethics Club, members work with regional nonprofit organizations, getting to know these organizations and their missions, and helping them craft and finalize pitches. These pitches are presented, and funding is awarded to the most promising pitches, supporting the community while also supporting student development (12). (Goal 1)

-The College of Business's Entrepreneurship Bachelor of Science and Venture Master of Business Administration degree programs encourages students to work with local startups and businesses on business and capital plans (13, 14). (Goal 1)

-UW's College of Law Practicum pairs students with local companies to address simple legal needs (15). (Goal 1)

-WIP announced 10 \$25,000 awards in July 2024 to businesses and individuals in the Creative Economy in Wyoming (16). (Goal 1)

-The CEI has initiated student-facing programs focused on talent and workforce development. Students were connected to principles of innovation through partnership with companies and communities, including Plenty and the City of Laramie. In collaboration with these partners, students learned about and tackled real-world challenges facing Wyoming, applying principles to what they learn about Wyoming's economic and innovation ecosystem (17). (Goal 3)

-The positive impact of these endeavors is visible in the views of external stakeholders and internal stakeholders, who concluded that workforce development/training and entrepreneurial/innovation support, and prioritizing economic growth, respectively, are areas where UW is doing well (18, 19, 20).

-All these activities and accomplishments align with the internal and external stakeholder views that UW is strong in its collaboration with business and community leaders, in fostering private-public relationships, and with external stakeholder conversations on comprehensive entrepreneurial training and experiential learning and mentorship (18, 19, 20).

Accomplishment 3. Generating an Ecosystem for Innovation

Cultivating an environment that fosters innovation has been a key focus at the UW and has emerged as a successful cornerstone of the institution. This success is supported by a strong campus culture, leadership, and partnerships highlighted as assets of UW by internal stakeholders. External stakeholder feedback emphasized that one of UW's fortes is in entrepreneurial and innovation support and engaging with economic development initiatives which drive innovation.

A longstanding UW innovation effort is the Wyoming SBIR/STTR initiative (21), which works to connect small businesses and innovators with innovative technologies to federal government research and development funds, through providing statewide outreach through workshops, webinars, and mentoring. Through the SBIR/STTR initiative, innovation opportunities are generated and economic ecosystems are reinvigorated with innovative technologies, ideas, and knowledge. Over the last five years, companies in Wyoming had 78 proposals funded resulting in \$30,637,151.86 in funding (22). (Goal 1)

The Wyoming Community Navigator (SBA-funded) program successfully provided support services to Wyoming businesses in underrepresented/underserved communities; the program received a 2023 WEDA Innovation award (23).

Another innovation driver at UW and in Wyoming was the WIP, an ongoing cooperative economic development effort launched in 2021 that is a partnership between UW, Wyoming Governor's Office, WBC, Wyoming's community colleges, Wyoming Department of Workforce Services, Wyoming Department of Education, and the WCCC (24). WIP is the focal point of efforts by UW's President Seidel and Provost Carman to prioritize community engagement and economic development statewide. WIP implements entrepreneurship, innovation, and business skill programs across the state, such as the Wyoming Outdoor Recreation, Tourism, and Hospitality Initiative (WORTH) (25). WORTH supports Wyoming's second-largest economic sector by developing partnerships with industry and community leaders to provide experiential learning for students, professional development for the workforce, and outreach services to Wyoming's tourism industry. WORTH notably co-hosts the Inter-Tribal Tourism Summit in partnership with the High Plains American Indian Research Institute (HPAIRI), a conference engaging directly with the sovereign nations and inhabitants of the Wind River Indian Reservation, with 27 presenters, 7 presentations, and 80

attendants (26). WIP's priority through these partnerships and initiatives is to develop innovations that build Wyoming's economy and workforce. (Goal 1, 2, and 3)

The OISP symbolizes UW's forward-looking focus on innovation. Formed in January 2024 as a venture between UW and the UWF, it establishes partnerships between the university, industry, and non-industry partners to foster innovation and economic impact. This new office is a vehicle for UW to bolster university-industry collaboration and innovation, speaking to the university's prioritization of economic development and partnerships, and further shaping a campus culture of innovation (27). (Goal 1)

In addition, UW is actively restructuring and refocusing TTO, IMPACT 307, and CEI to be more proactive and responsive to all stakeholders. Each of the above offices is engaged in creating new positions, setting roles and responsibilities, and actively recruiting for those positions: three FTEs in the TTO, two FTEs in IMPACT 307, and one FTE in CEI.

UW's engagement with communities, stakeholders and companies extends beyond the examples presented above. UW is a leader in innovation for major Wyoming industries, including its largest—energy resources.

-UW's Center for Innovation for Flow through Porous Media (COIFPM) (28) this year began a public-private partnership for research aimed at revitalizing legacy oil fields in Campbell, Converse, and Johnson counties, under the Wyoming Gas Injection Initiative (29). Full implementation of the technologies looks ahead to 2026 and the project will extend to 2030 and beyond. COIFPM facilities are unique and the only kind in the world. Small and large local and multinational companies seek to collaborate with the expertise at COIFPM to further their needs. COIFPM has already created successes for companies internationally and will do the same for Wyoming. (Goals 1, 2, and 3)

-In addition to COIFPM, the School of Energy Resources (SER) is a unique resource of expertise. SER is dedicated to energy-driven economic development for the state of Wyoming. Created in 2006, SER enhances the university's energy-related education, research, and outreach (30). SER directs and integrates innovative energy research and academic programs at UW and bridges academics and industry through outreach programs. SER's outreach program furthers engagement with stakeholders - communities, researchers, and industry - helping SER understand the needs of communities as well as potential employers and continually evaluate how to best prepare students; SER's expanding outreach program also informs its research priorities. (Goals 1, 2, and 3)

These exemplars of UW's efforts highlight the breadth and scope of how UW engages with a variety of groups and communities to address community needs and participate in the development of entrepreneurial and innovation ecosystems to address those needs. This engagement occurs across the UW campus through several programs, offices, and units. These efforts have been started by individuals or programs interested in activities to engage the community. The IEP self-study highlighted the synergies that exist at UW and can be better coordinated for an even greater impact.

3. Growth and Improvement Plan

The self-study results (internal survey and external interviews) identified three overarching areas of improvement needed to grow UW's innovation and economic engagement as outlined in Goals 1, 2, and 3 below. Addressing these key goals will enhance UW's ability to impact communities in Wyoming beyond the classroom through community engagement and research translation. Each growth and improvement goal described below has a champion responsible for implementing the goal over the next five years (identified in the table).

Goal 1: Construct and complete the innovation and economic engagement ecosystem.

1.1. Reininvigorate and reimagine the technology transfer, entrepreneurship, and innovation units.

Need: The self-study revealed that a functional and proactive TTO, supportive incubator/ accelerator (IMPACT 307), and training through the CEI are essential for vibrant innovation system; and that these units are not fulfilling that role.

Readiness: TTO, IMPACT 307, and CEI receive significant funding (about \$3M per year). In 2023 UW began restructuring these units to be proactive and responsive to the UW community. Recent hires Arundeeep Pradhan, Deputy VP for Research and Innovation, and Robert Macy, Director of CEI have extensive experience in these areas. Recruitment of directors for TTO and IMPACT 307 is underway.

Improvement Plan Activities:

When fully staffed, TTO will have 4.5 FTE (two times more than in the past). UW contracts with APIOiX and CSU-STRATA (Colorado State University's TTO) to provide technology transfer and entrepreneurial training, mentoring, and outreach to ensure a fully functional TTO in 2024. Using the Accelerating Research Translation grant (1) as a catalyst, the TTO will be more proactive in bringing market, industry, and community information to UW researchers and entrepreneurs to result in higher quality disclosures, patent applications, licenses, and startups.

IMPACT 307 lost its focus on technology-based startups. With a new mandate and staff, IMPACT 307 will engage entrepreneurs across UW in the business, legal, and R&D aspects of startups. IMPACT 307, TTO, and CEI will work closely to provide programming, mentoring, and education to UW entrepreneurs. IMPACT 307 will also work with local organizations in communities across Wyoming to provide services and support for technology-based startups.

CEI will launch three innovative programs to increase the innovation and entrepreneurship capacity of UW:

-An undergraduate innovation and consulting course, in collaboration with the SBDC, in which interdisciplinary undergraduate students work with businesses and non-profits to address their needs.

-A graduate technology commercialization fellowship program, in collaboration with TTO, in which interdisciplinary teams are paired with university technology startups, and/or patents from the university patent portfolio, to further commercialize these technologies.

-A master craftsman program, in collaboration with the department of Visual Arts, in which students gain training and hands on skills from ideation to prototype.

-CEI will increase its collaboration with other UW units, e.g., launching a UW chapter of the Collegiate Entrepreneurship Organization to establish a formal mentoring program for UW entrepreneurs and grow the NSF I-Corps at UW.

1.2. Fully establish and functionalize the Office of Industry and Strategic Partnerships (OISP)

Need: UW has a strong record of industry collaborations, 4-6% of research expenditures, which is comparable to industry-sponsored research at larger universities. However, UW's efforts are concentrated in the energy sector and fragmented in different colleges and schools (UNITE 2024 survey). The self-study revealed that UW needs infrastructure and processes for coordinating corporate engagement to advance its research agenda and to foster student success through industry engagement including internships.

Readiness: In 2023, UW committed significant resources to establish the OISP, a joint effort between UW and the UW Foundation to be more responsive and efficient in developing industry engagements. OISP's goal is to increase industry/partner engagement and deepen relationships with economic, workforce, and educational agencies and organizations resulting in higher numbers of grants, contracts, gifts, and internship opportunities for UW students. OISP serves the needs of all colleges and schools, leveraging their efforts and supporting them in making new connections.

Improvement Plan Activities:

- OISP will expand from 4 to 6 FTEs in 2025, adding key staff to support partnering with governmental, nongovernmental, and nonprofit entities.
- Form an OISP campus governance council, comprised of key members from UW to provide crucial ideas and feedback on OISP initiatives.
- Build a campus shared data community, with a goal toward unified systems and trust across units.
- Partner with corporate engagement consultant (UNITE) to optimize UW teams and create the framework for industry engagement.

1.3. Establish UW research park and enhance venture capital access.

Need: The self-study identified two critical resource gaps, space and access to capital, that limit growth of startups and early-stage technology-based companies. UW needs to identify and partner with stakeholders to develop and build these resources. This is a high-risk high-impact objective and will require working closely with the UW Board of Trustees for approval.

Readiness: IMPACT 307 facilities are not suitable for startups that need wet lab space or for startups that need to expand. UW executed an MOU with the Western Research Institute in Spring 2024 to house/mentor startups in the energy and minerals sectors. In 2024, UW also collaborated with the Laramie Chamber Business Alliance and WBC, the statewide agency for economic development, to identify space and facilities resulting in two companies (Plenty and Safran Passenger Innovations) moving their R&D activities to UW's Cirrus Sky Technology Park, resulting in over 300 technology jobs in Laramie.

Improvement Plan Activities:

- Work with city and state agencies to identify opportunities for developing infrastructure at the Cirrus Sky Technology Park where companies can take advantage of UW's research enterprise and access a qualified workforce.
- Identify and implement strategies to convert vacant wet labs in the UW Bureau of Mines building to create an incubator; develop strategies to raise funds for the conversion (six companies currently leasing space from UW can be moved to the proposed incubator).

-Leverage existing opportunities for startups (SBIR/STTR funding, Gener8tor, Wyoming Venture Capital) to develop and implement a gap funding program for technology development and a seed fund for startups with the UWF and key interested stakeholders.

Goal 2: Enhance the entrepreneurship, innovation, and economic engagement culture at UW

UW will change its culture by providing opportunities, incentives, reducing barriers, and recognizing accomplishments for translational research, entrepreneurship, and economic engagement activities.

2.1. Recognize faculty engagement with research, community, industry, and economic development partnerships

Need: As indicated by the internal survey, there needs to be an alignment of these activities with the reward system (review, promotion, and tenure) internally; and, as per both internal and external stakeholders more efficient processes for industry and faculty to engage.

Readiness: UW has proposed inclusion of community, industry, and economic development activities in the review, promotion, and tenure policies. These new policies are being evaluated and implemented at the college and department levels.

Improvement Plan Activities:

- Work with the provost, deans, and department chairs in implementing policies that reward faculty economic engagement involvement/contributions. The College of Engineering and Physical Sciences and the Mechanical Engineering department are adopting these new guidelines.
- Create a database of faculty expertise and make it available to stakeholders.
- Encourage faculty participation in opportunities related to community, industry, and economic development.
- Provide translational research funding opportunities for researchers.
- Improve the service orientation to leverage experts, university departments, and colleges to proactively address issues facing Wyoming communities.

2.2. Streamline processes to reduce barriers for collaborations and partnerships with community, industry, and economic development agencies.

Need: Current processes at UW are perceived as cumbersome and siloed with little communication between offices responsible for implementing and executing collaborations and partnerships. UW has a process for corporate engagement that can be adapted to identify community and other research partners. For example, WCF grants help pay for non-profit employees to take courses toward a master's in public administration.

Readiness: UW has over the last year focused on restructuring TTO and IMPACT 307, creation of the OISP and the RDO, and increased staffing of the Pre-awards office.

Improvement Plan Activities:

- Assemble task force to identify current issues and processes that create delays in establishing partnerships and collaborations and identify workable solutions.
- Create and adopt a systematic and phased approach for engaging economic development, research, non-profits, and non-industry strategic partners.

- Create a “Front Door” for external partners that would guide external partners to the appropriate units, offices, and faculty at UW via a relationship manager i.e., ‘concierge’.
- Streamline procedures for contracts and agreements, faculty-company collaborations, and creating connections between UW, entrepreneurs, and organizations.
- Identify best practices, metrics for success, training partners, and successful communication process.

2.3. Develop a systematic approach to grow the research enterprise and identify and develop strategic economic development and research partnerships.

Need: Based on internal feedback, there is a need to grow the research enterprise and effective partnering mechanisms. Current UW approaches are siloed with limited focus on translational research.

Readiness: UW established the RDO and has also undertaken an analysis of its research capacity to determine where and how it can grow the research enterprise.

Improvement Plan Activities:

- Work with department chairs, deans, and UW senior leadership to develop strategies and incentives for growing the research enterprise.
- Increase awareness of the Research Development Office.
- Engage more closely with the state Grants Management Office, other state agencies, and universities to address research and workforce development opportunities.
- Create/Provide opportunities for faculty engagement in economic and community partnerships.

Goal 3: Expand strategic communication and training to maximize innovation and economic engagement awareness.

Goal 3.1. Implement a comprehensive communication and outreach strategy

Need: The self-study indicated a critical state-wide need for a comprehensive communication strategy to disseminate information on success stories, partnerships, connections, innovations, and economic engagement. Internal and external stakeholders also noted difficulty in finding relevant information on the UW website.

Readiness: UW’s “World Needs More Cowboys” campaign established UW’s presence throughout the state as being responsive to communities. UW is leveraging the relationships established to engage in dialog with communities in Wyoming. Having received the Carnegie Community Engaged Campus designation, UW is prioritizing engagement and outreach through multiple UW units.

Improvement Plan Activities:

- Develop a high-level task to review the website for gaps and implement strategies to address those gaps resulting in a user-friendly website that enables information access.
- Explore different marketing channels like YouTube, podcasts, and events to communicate effectively with internal and external stakeholders.
- Collaborate with regional leaders by utilizing UW’s cultural and athletic activities.

-Partner with communities to prioritize public/private partnerships and investments that drive economic growth.

Goal 3.2. Connect continually with the internal and external stakeholders through two-way communications

Need: Self-study showed siloing across campus and between economic development ecosystem partners; and the desire to bolster collaborative efforts that bring key stakeholders for economic engagement and innovation activities together.

Readiness: UW is leveraging existing and longstanding partnerships with community and economic development organizations to build and strengthen its participation via hosting events, like the Wyoming Governor's Business Forum.

Improvement Plan Activities:

-Improve the economic development ecosystems to create networks to facilitate interactions among key UW personnel and regional economic entities.

-Build on the success of hosting the Governor's Business Forum and facilitate more regional and statewide conferences and other events.

-Increase participation in events like the Connect2Women conference and others that focus on workforce and economic issues affecting Wyoming.

-Highlight UW's research success through an annual event honoring researchers that engage in entrepreneurial and economic development activities.

Goal 3.3. Develop proactive place-based economic development partnerships.

Need: Build systems of trust with rural communities through economic and workforce development partnerships.

Readiness: Leverage UW Extension's relationships with community and local businesses; existing relationships OISP and WIP have with community colleges, local, state, and federal agencies, and organizations; and the work HPAIRI engages with Tribal organizations.

Improvement Plan Activities:

-Promoting civic discourse through facilitated dialog with communities.

-Work with extension and rural entrepreneurs to bolster business support services.

-Engage more with the community colleges to share programing and support their entrepreneurial and innovation ecosystems.

-Engage more with tribal governments on economic and workforce development initiatives building on current relationships.

Links and Sources

1a.

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