Research and Innovation Briefing

BACKGROUND

OSU's research, innovation, scholarship, and creative activities make us world leaders. In FY22, we continued to engage in research and scholarship in areas of significant global impact, including complex issues in the realm of health and climate sciences. We focused on answering the fundamental scientific questions, finding solutions to global problems, but also addressing critical aspects such as environmental justice, equity, and community response and resilience. We continued to stress the importance of the impact of our work and continued to collaborate across disciplines and with our communities to tackle global issues and seek solutions that are innovative, holistic, and implementable. This report summarizes the university's progress in reaching its research goals in FY22; describes special initiatives in FY22 aimed at advancing research, scholarship, and innovation; and discusses related opportunities and threats facing the research enterprise in FY23 and beyond.

RESEARCH AT OSU

Oregon State University's research activity takes place in the colleges, schools, and departments, as well as in centers, institutes, and large research facilities. The Research Office (RO) is the central administrative unit tasked to support, enable, and strategically grow research in partnership with the colleges, centers, and institutes.

METRICS

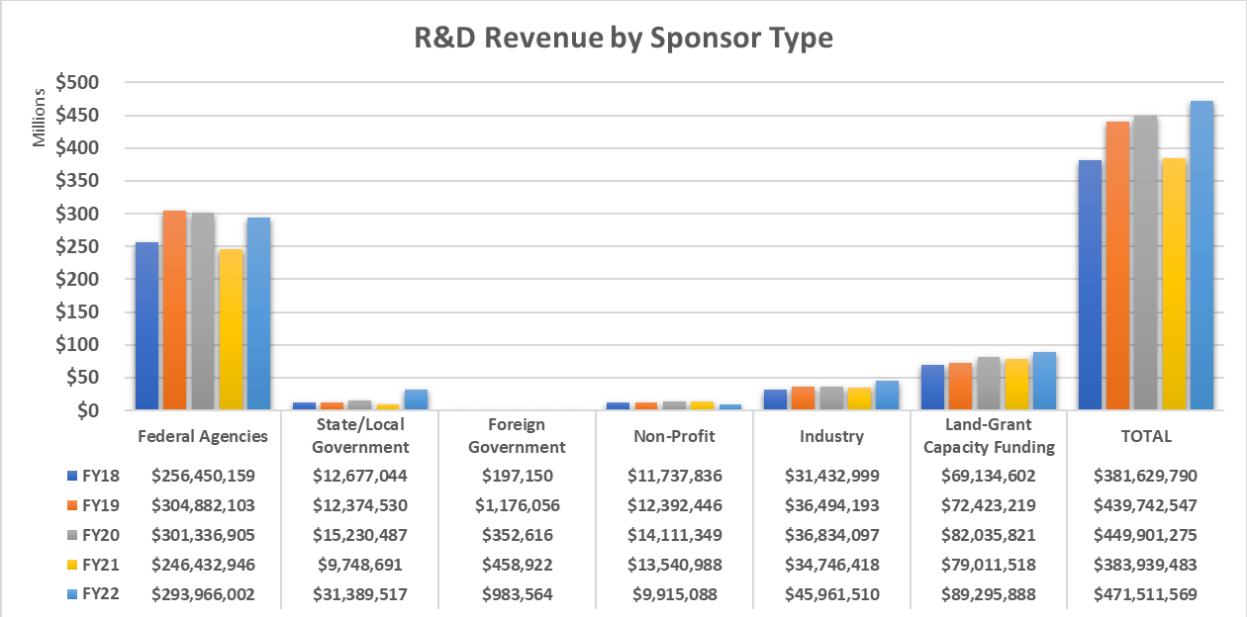
Research Awards and Expenditures

Research funding last fiscal year at Oregon State University has reached a record high of $471.5 million in awards (see **Total** in **Figure 1**). This is a 22% increase from the prior year and the fourth time in six years that OSU's research awards have exceeded $400 million (see the university's news release). The total in revenue for Research and Development (R&D) includes governmental awards for research; revenue from business and industry for testing services, licensing and other partnerships; and land grant funding provided by state and federal agencies.

Funding awards were received from 20 different federal departments and funding agencies. From a total of $293.9M in federal funding, 81% came from the top five funding agencies: #1 NSF (27%), #2 USDA (25%), #3 DHHS (14%), #4 DOE (8%), #5 DOD (7%). In addition, land grant formula funding provided $89.2M; non-profit organizations, including foundations, $9.9M; state and local governments, $31.3M; foreign governments, $983K; and OSU's engagement with business and industry provided $45.9M (see **FY22** in **Figure 1**).

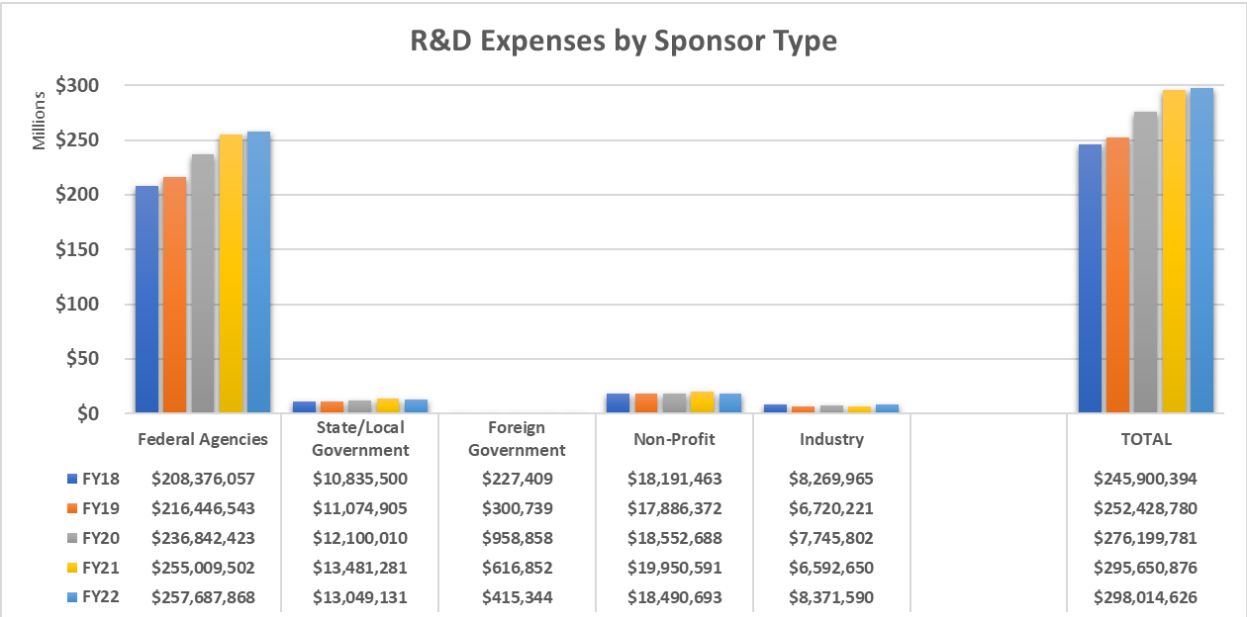
These awards translate into research expenditures growing from $246M in FY18 to $298M in FY22, indicating a steady year-to-year increase (see **Total** column in **Figure 2**). A big part of that growth has been due to federal funding of the RCRV and PacWave projects, but when removing those two projects from this data set, there has been a significant increase in expenditures over the last two years driven by all other projects. Expenditures by college or center/institute (**Figure 3**) show increases in research expenditures for many of the units and highlight the large expenditures that are continuing to take place primarily in the College of Earth, Ocean, and Atmospheric Sciences ($82.9M), College of Agricultural Sciences ($59.8M), College of Engineering ($51.6M), College of Public Health and Human Sciences ($20.8M), and the combined Research Office Centers and Institutes ($27.6M).

Figure 1: FY18-FY22 R&D Revenue by Sponsor Type. *These data capture all financials directly and indirectly related to research, including sponsored project awards as well as foundation gifts, testing, licensing revenues in support of industry research, and federal and state land-grant formula funding. (Source: Office of Research Annual Award Data)*



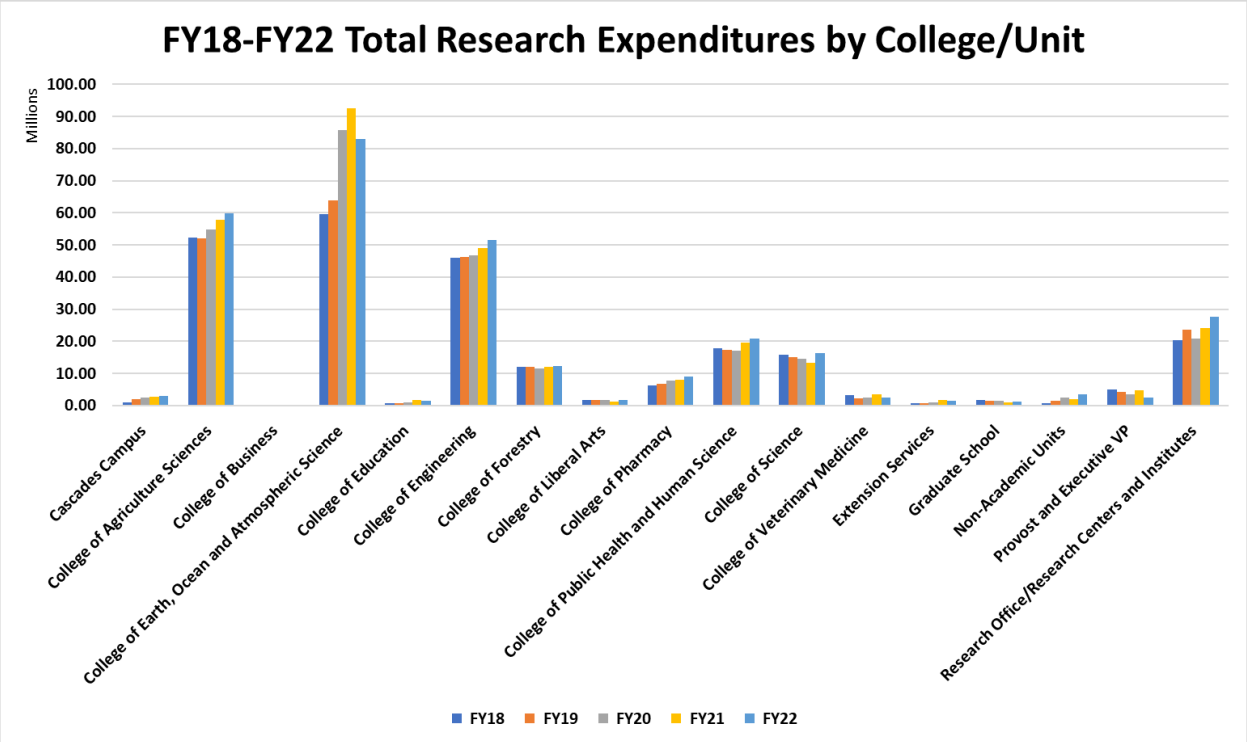
	Federal Agencies	State/Local Government	Foreign Government	Non-Profit	Industry	Land-Grant Capacity Funding	TOTAL
FY18	$256,450,159	$12,677,044	$197,150	$11,737,836	$31,432,999	$69,134,602	$381,629,790
FY19	$304,882,103	$12,374,530	$1,176,056	$12,392,446	$36,494,193	$72,423,219	$439,742,547
FY20	$301,336,905	$15,230,487	$352,616	$14,111,349	$36,834,097	$82,035,821	$449,901,275
FY21	$246,432,946	$9,748,691	$458,922	$13,540,988	$34,746,418	$79,011,518	$383,939,483
FY22	$293,966,002	$31,389,517	$983,564	$9,915,088	$45,961,510	$89,295,888	$471,511,569

Figure 2: FY18-FY22 R&D Expenditures by Sponsor Type. *This figure includes all restricted funds administered by the RO (including Other Sponsored Activities). It does not include Agriculture Research Foundation gifts in support of research, OSU Foundation awards and gifts, testing income (in support of business and industry), and licensing and royalty income.*



	Federal Agencies	State/Local Government	Foreign Government	Non-Profit	Industry		TOTAL
FY18	$208,376,057	$10,835,500	$227,409	$18,191,463	$8,269,965		$245,900,394
FY19	$216,446,543	$11,074,905	$300,739	$17,886,372	$6,720,221		$252,428,780
FY20	$236,842,423	$12,100,010	$958,858	$18,552,688	$7,745,802		$276,199,781
FY21	$255,009,502	$13,481,281	$616,852	$19,950,591	$6,592,650		$295,650,876
FY22	$257,687,868	$13,049,131	$415,344	$18,490,693	$8,371,590		$298,014,626

Figure 3: FY18-FY22 Total Research Expenditures by College and University-Wide Centers and Institutes. *This figure includes all restricted funds administered by the RO (includes Other Sponsored Activities). It does not include Agriculture Research Foundation gifts in support of research, OSU Foundation awards and gifts, testing income (in support of business and industry), and licensing and royalty income.*



Innovation and Economic Impact

OSU's engagement with business and industry soared to $45.9 million, up more than $11 million from a year ago. This was the seventh straight year that business and industry funding exceeded $30 million (see **Industry** columns in **Figure 1**). Sources include industry sponsored research, intellectual property licensing, contracts for testing and services, support through the Agricultural Research Foundation, and research gifts through the OSU Foundation. Almost half of the revenues are derived from testing and services, which OSU labs perform in support of innovative, private sector products and services.

A point of pride, last year was the best year in the history of Oregon State University for startup business success, showcasing OSU faculty and student entrepreneurs' mission to drive innovation toward commercialization and maximize OSU's impact. A few highlights include: NuScale Power begins trading on Wall Street at a valuation of $1.9B; Inpria is acquired by JSR Corporation for $514M; and Agility Robotics raises $150M from Amazon.

On the other hand, while license income rose in parallel with licensee success, inventions disclosed had a significant decline. The significant uptick caused by the pandemic with COVID-related inventions leveled off, and then declined last fiscal year. In conversations with peers, many other universities experienced this roller coaster effect as well, and now have an intense focus on catching up. The university will continue to focus on this metric to support colleges' efforts.

Finally, of significant note, OSU recovered sharply from the pandemic downturn in industry sponsored research, producing $8.9M in awards (**Table 1**), which is a 53% increase over the previous three-year average (taking out the pandemic year of FY21).

Table 1: Innovation and Economic Impact from FY18 to FY22. *Overview of invention disclosures, licensing income, and industry sponsored research.*

University Totals	FY18	FY19	FY20	FY21	FY22
Invention Disclosures	77	80	100	75	50
Licensing Income	$4,672,206	$4,567,823	$4,467,511	$3,987,761	$6,066,069
Industry Sponsored Research	$5,227,185	$6,107,379	$6,072,208	$2,911,283	$8,938,453

SPECIAL INITIATIVES & PROJECTS

Catalyzing Impact through Research, Scholarship, and Creative Activities

Advancing transdisciplinary research

Over the next several years, academic institutions will have ample opportunities to engage in new transdisciplinary research and innovation in areas that will have significant global impact. These include complex issues in the realm of health and climate sciences of great societal concern. We recognize that the impact of our research, scholarship and creative activities cannot be measured solely with dollar amounts, but also through other contributions that do not only answer fundamental scientific questions, but address environmental justice, equity, and community resilience and response, and more. OSU can be uniquely successful in tackling global issues through transdisciplinary approaches by integrating work in the arts, humanities, and social sciences with work in STEM fields, which will be a distinguishing factor for OSU. Attracting funding through these new opportunities will also lead to further increasing OSU's reputation and impact for the state and beyond.

Over the past year, the university increased targeted support for faculty developing collaborative and transdisciplinary proposals. As a result, we were once again rewarded with some major awards with tremendous impact, but which are increasingly large and complex in size and nature. The newly formed Office for Research Advancement (ORA) as part of the Research Office focused on increasing faculty members' proposal success rates by supporting their proposal efforts, as well as offering a series of campus conversations, learning series, and ignite sessions to help build knowledge and capacity around topics of global relevance and related funding agencies and foundations. Of special note, ORA launched the Research Impact and Advancement Academy (the Advancement *Academy*) to help develop the skills of junior faculty to "leap to large" transdisciplinary team-based proposals. This *Advancement Academy* is a truly unique and strategic program, designed to support emerging research leaders developing leadership capacity and plans for pursuing large transdisciplinary research programs.

Advancing use-inspired research

Universities are unique places where basic and use-inspired research combine to create the nation's innovation engines. Use-inspired research targeted towards finding solutions that are implementable enables the translation of research to directly impact the economy. Over the last year, funding agencies such as NSF, NIH, DOE, NIST and the federal government have increased their calls to action by creating new opportunities towards this goal. Most notably, the National Science Foundation's new Technology, Innovation, and Partnerships (TIP) directorate has focused on building innovation ecosystems.

Advancing use-inspired research as a strategic initiative positions OSU as a key driver for the state and nation's economy. To that end, OSU submitted two NSF Regional Innovation Engines planning proposals focused on semiconductors and mass-timber as part of this new directorate, with the potential to bring over $100M to the region. OSU also contributed to Senator Wyden's task force focused on making recommendations for Oregon to capitalize on the strengths of the semiconductor industry in the state, and the potential of $10B in federal funding available towards building up our state's economy and workforce. Oregon has 15% of the national semiconductor workforce, and a higher concentration of the industry's skilled workers than any other state, with a majority at Intel's global R&D center in Hillsboro, which presents an unprecedented opportunity for building a strategic partnership. This is a great example of a university's key role in a major industry sector to help with our global competitiveness.

Exploring strategic partnerships with federal agencies and national labs

In FY22, 81% of the federal awards were awarded by 5 top agencies, which includes NSF, USDA, DHHS/NIH, DOE, and DOD. Two opportunities stood out. First, although OSU is home to two NOAA-funded cooperative institutes, it still is underperforming in NOAA funded work. Last year, we worked to strengthen our relationship with our NOAA partners to become a strategic partner and developed strategies for research development to increase our researchers' ability to compete for NOAA funds, both piloted through the NOAA Cooperative Institute (CIMERS). Second, even though we have over 100 principal investigators (PIs) who are funded by the NIH, we lag significantly behind our peers in the success rate of our senior faculty with the NIH. Last year, a provost fellow focused on identifying ways to build the university's NIH strengths and developed a learning series to support the ability of new faculty to compete for these funds. Both have components that are integrated into the programming of the new Office of Research Advancement and will be built into the vision of an integrated biohealth sciences hub to be piloted by the Linus Pauling Institute (LPI).

In addition, although OSU has had several critical partnerships with national labs, starting with a strategic partnership with Idaho National Labs primarily through the Nuclear Science and Engineering program, we lack established partnerships in other areas of strength. Last year, we initiated work towards building more holistic and strategic partnerships with NREL and PNNL. These partnerships will not only result in adding to our research funding, but also will provide employment opportunities for our students, and build and diversify their workforce.

Catalyzing Impact through Innovation & Entrepreneurship

Developing a university-industry partnership framework

R1 research universities—have a big part to play in economic development. Strong and meaningful university-industry collaborations are key in growing our economic impact and our national competitiveness. They help us speed up the discovery and application of our research innovations to solving our societal problems. The collaborations also help the companies by training the highly skilled workforce that they badly need. They also help create opportunities for research, faculty entrepreneurship, and student experiential learning and career success.

To help with this goal, last year, OSU and the OSU Foundation partnered to develop an economic development-focused, university-industry partnerships framework acting as a strategic and coordinated "front door" to OSU, providing talent access, workforce development, research, and innovation opportunities to industry, community and government agencies. The outcome of the project is a set of recommendations on how OSU can improve its accessibility, visibility, and awareness with industry. Work will continue this year to refine the framework, define the return on the investment, and estimate costs of implementation.

Supporting the development of a distributed innovation ecosystem

To leverage existing innovation-focused resources, enhance programs in multiple OSU locations, as well as OSU's reputation as an innovation leader, the university has explored best paths to grow and deploy centralized resources in support of OSU innovation places like: the Advanced Technologies and Manufacturing Institute in Corvallis, the Innovation Lab at OSU's Hatfield Marine Science Center in Newport, the Food Innovation Center in Portland, and the planned Innovation District at OSU-Cascades in Bend, collectively building and branding OSU's distributed innovation ecosystem. The ecosystem will continue to develop into FY23 and be enhanced further with the upcoming the Jen-Hsun and Lori Huang Collaborative Innovation Complex's maker space and innovation hub.

Forming a joint alliance with Oregon universities

To promote innovative discoveries, establish successful collaborations, form new companies, and increase economic development in Oregon, OSU Advantage led the coordination of universities in Oregon to form a Joint Alliance for Oregon's Innovation Economy. By bringing together resources across multiple institutions, the alliance aims to promote innovative discoveries, establish successful collaborations, form new companies, and increase research innovation-based economic development in Oregon.

Improving Physical and Administrative Research Infrastructure

Investing in physical research infrastructure

State-of-the-art facilities play a big role in bolstering OSU's research, scholarship and creative activities even further. The May 2022 briefing on Research Infrastructure Needs presented many of the projects that contribute to the research enterprise, including the renovation of Cordley Hall, Whitycombe Hall, and the statewide research centers. The university has also initiated investment in the facilities and infrastructure at the HMSC in Newport which is serving to support a revitalization and expansion of research potential and partnerships. In addition to the completion of the Gladys Valley Marine Studies building, which provides state-of-the-art research laboratories, teaching spaces, and the Innovation Lab (i-lab), investments were made to upgrade the extensive sea water system serving the laboratories throughout HMSC and to expand its pier and Ship Operations in collaboration with the College of Earth, Ocean, and Atmospheric Sciences in anticipation of the 2025 arrival of the new research vessel, the R/V Taani. With the growth of the faculty, staff, and students resident at and visiting HMSC, the first phase of new housing is to be built in 2023. These strategic investments have expanded funding sources and collaborations as new research and innovation directions are made possible.

Of special note this year, the university started some major new capital projects that, when finalized, will provide a unique opportunity to think about research and scholarship broadly in the context of collaborative transdisciplinary research and innovation where we seek holistic solutions at the intersections of disciplines along with critical external partners to increase our impact and our student's success. Notably, the Jen-Hsun and Lori Huang Collaborative Innovation Complex has been designed with six signature facilities to elevate research and innovation impact in addressing global challenges further; and the Patricia Valian Reser Center for the Creative Arts will promote arts-based engagement with research across the university exploring the relationships between the arts, humanities, science, engineering, and technology; both exemplifying the types of collaborations we value at OSU.

Transitioning to a new electronic research administration platform

To simplify research administration for investigators, the university has invested significantly in modernizing its electronic research administration platform. The system–Cayuse–has been used for years for administering awards and will now be used for two key compliance functions: managing research conflicts of interest and overseeing human subjects research. This year, both modules were launched successfully, streamlining submissions and processing for researchers and staff. The RO will modernize the overall Cayuse Sponsored Programs platform to provide an improved user experience and to fully integrate the newly-launched compliance modules, providing a unified and more effective tool to promote research compliance.

Transforming the human research protection program

The university has made major improvements to the *Human Research Protection Program* (HRPP), a key compliance program in the Office of Research Integrity that oversees research involving human subjects. The program has thus far struggled to meet research demand due in large part to a significant regulatory change in 2018. At the same time, the RO implemented an electronic records administration system, which has proven problematic over time. Recognizing the need to adapt the program based on updated federal regulations and to replace the problematic software, the RO has been modernizing and transforming the HRPP to better enable critical research and protect human participants. The launch of the new electronic records system in November–Cayuse Human Ethics–has allowed the HRPP to implement key programmatic improvements that simplify protocol submissions, streamline reviews, leverage a new exemption process for minimal risk studies, and more, hence transforming the user experience for our researchers.

Stabilizing award management functions

The Office of Sponsored Research and Awards Administration (OSRAA) functions touch every proposal and award the university receives. This unit has struggled with a significant backlog due to the inability to keep up with growth, putting the research enterprise at risk. OSU continued to assess and transform these functions to better serve the research community. Specifically, over the past year we completed OSRAA's life-cycle reorganization and the hiring needed to bring the services to a baseline level of support. To develop, enhance, and grow the life-cycle teams under one common leadership, we aligned the *pre and post award administration* under one Associate Vice President for Research. To provide transparency and visibility of the backlog, we developed a monthly dashboard with key performance metrics that tells the Award Management story, with an overview of staffing, areas of concerns, volume of award activity, backlog of work, overall expenditures, and volume of invoices and accounts receivables. Current research administration principles and processes and business procedures are not standardized, clearly understood, readily identifiable, or easily accessed. Furthermore, the level of engagement required by PIs on administrative activities reduces their capacity to conduct research, support students, and complete other job responsibilities. We continue to work to improve these business processes related to sponsored research. One notable example this year is the collaboration between the Research Office and the DFA Controller's Unit to streamline functions and clarify roles and responsibilities for research administration encompassing the *full sponsored project* lifecycle at Oregon State University.

OPPORTUNITIES AND THREATS

The university continues to assess, understand, and tackle major challenges for OSU's research enterprise. The following sections reflect on the opportunities and threats, including efforts to capitalize on opportunities and counter threats with new initiatives and projects.

Positioning OSU to Attract New Funding and Support Researchers

Enabling transdisciplinary collaborations in areas with global impact

The *Advancement Academy* described above offers a new structure unique amongst all R1 institutions in the U.S. to provide OSU with an edge in preparing our faculty "to leap to large". Currently, we can accommodate 20 new *fellows* every year, who will follow a provocative curriculum to move them out of their comfort zone and into a new mindset of working on larger and more complex proposals. There is strong demand by faculty to move in this new direction of transdisciplinary collaborations with >140 early career faculty applying for the 20 fellow spots, which will require continued investment. In addition, faculty groups that aim for high-risk/high-reward larger and more complex proposals in the $5-50M range and above will require continued investment. This support will be critical for OSU to position itself as a leader in areas with global impact, for example, by winning awards to run future research alliances and large-scale national facilities, leveraging the CIC and others.

Growing support for larger more complex proposals

OSU's grants and awards administration is currently built on a model exemplified by typical NSF grants and one-off industry funded research projects. The last several years, we have seen an increase in the success of our faculty in attracting funding and leading more complex proposals. However, this growth comes with staffing and workload challenges, resulting in inadequate support for needed services. Sustaining core functions, which are needed to bring in and manage funding after the awards are made, is increasingly seen as providing OSU with a major competitive edge in larger and more complex projects, but it is often a management challenge. The university also continues to assess and manage compliance requirements and audits from the federal government, which will add significant administrative burden on staff and faculty and increase the institutional responsibility to educate researchers about the consequences on future funding and reputation.

To significantly increase OSU's research and its impact, the university must develop additional capabilities and support for long-term, multi-unit administrative teams to help PIs build competitive proposals and to support successful implementation of these complex projects. This can involve complex funding scenarios, innovative capital construction needs, sophisticated project management teams, multilateral agreements, non-standard insurance and risk management issues, complex legal and compliance issues, sophisticated financial reporting, audits, and other complexities. With appropriate resources, the university will be able to provide critical support of the development and administration of strategic research awards that are key to propelling OSU's reputation and impact going forward. It will also be critical to develop a new model that directs large and complex projects to a specialized administrative support team in the RO.

Supporting an Innovation and Entrepreneurship System

Supporting the growing demand by faculty and students to enable innovation and entrepreneurship is now a competitive edge in recruitment and retention, as well as an expectation from federal agencies to demonstrate the economic impact of research. All funding that currently supports proactive innovation culture building, protecting intellectual property, gap funding to support research/innovation development, interns, and the majority of our accelerator startup programming rely on unstable sources of income.

The university has developed a plan with key colleges on a fundraising approach that will use licensing revenues as a match to solidify these resources and develop additional resources aligned with best practices from other universities. If this fundraising effort is successful, it will significantly strengthen OSU's capacity to support innovation and entrepreneurship.

Establishing a Sound Physical and Administrative Research Infrastructure

Investing in laboratories and equipment

Experimental research relies heavily on facilities with state-of the-art equipment. Keeping track of the availability and condition of equipment has been a challenge for OSU. To tackle this issue, the university is in the final stages of a soft launch of a Research Equipment and Lab Management System (RELMS). RELMS will reduce administrative burden, automate invoicing and billing, provide an integrated online scheduling system, and increase instrument utilization. This will help leverage resources by eliminating duplication of equipment purchases and ultimately allow researchers to search one location for the possible equipment available for use at OSU. As data becomes available from RELMS, we will be able to better determine equipment replacement plans and service contract needs, which will put core facilities on a more sustainable financial footing. Putting this investment into OSU's core facilities will directly allow the institution to invest in much needed research equipment. This work will also be critical to implement for the facilities and equipment in the CIC when they become available.

Bolstering research security in response to changing regulatory landscape

Federal agencies continue to voice concerns about inappropriate foreign influence over federally-funded research, with particular focus on state-sponsored efforts targeting academic researchers to gain access to cutting-edge technologies, sensitive research data, intellectual property, and expertise that would provide an economic or national security advantage. OSU, like all other research institutions across the nation, is anticipating new obligations and regulatory expansions in the area of "research security." This will include export controls, international travel, data security, and training. New restrictions are likely to target specific sectors and technologies, including supercomputing, artificial intelligence, semiconductors, biotechnology, machine learning, quantum information and technology, hypersonics, advanced materials and other leading-edge areas. OSU researchers will also see expanded requirements for disclosing their outside interests and funding sources, and institutions will be expected to identify and manage any conflicts of interest or commitment.

OSU has programs overseeing each of these areas but there remains significant uncertainty about the specific details of the forthcoming regulatory changes, their impact, and their costs as we await formal guidance and requirements from federal agencies. The Research Office, University Information Technology, Immigration Services, Faculty Affairs, colleges, and others collaborate to manage these functions, but there are opportunities for increased coordination, more formalized processes, and strengthening program areas. Regarding managing conflicts of interest and commitment, the Research Office oversees the disclosures and management of financial conflicts for federally-funded researchers, while Faculty Affairs and Human Resources oversee conflicts of commitment that can arise for faculty, both researchers and non-researchers. The Research Office has implemented a new software system to better track and monitor financial disclosures for researchers and is working with Faculty Affairs on expanding on this system to track broader potential conflicts of commitment among all faculty.

Implementing a sound research computing infrastructure

The distributed nature of research at OSU is also reflected in its current distributed computing infrastructure, which results in some researchers and students not having easy, direct, secure, and equitable access to advanced computation and data storage. With high performance computing and storage solutions in continuous flux within industry and given the need for researchers to work more collaboratively to solve large transdisciplinary challenges with high societal impact, while meeting increasing compliance requirements, it is critical for OSU to look ahead to what research computing needs and capabilities would be in 2030. Such a critical

future analysis would allow OSU to build out a sound research computing strategy and infrastructure with the goal to effectively support the research enterprise across the colleges, centers, and institutes.

With the CIC coming online in 2025, OSU has the opportunity to elevate many top ranked programs and research goals by leveraging the unique capabilities that will be available to campus around high-performance supercomputing, artificial intelligence, data science, and virtualization. These capabilities will greatly enhance our enterprise research capabilities in regional and global scale modeling to enhance our impact in the ocean and climate sciences, establishing OSU as a world leader in solving global challenges facing the planet and people.

Capturing Adequate Facilities and Administration Costs Reimbursement

OSU's recovery of the facility and administration (F&A) costs of sponsored research also known as indirect costs (the real and tangible infrastructure costs of using the University's facilities and administrative support) remains a risk for OSU. OSU's current federally-approved F&A overhead rate is 48.5%. That is lower than nearly all of the university's R1 peers. Moreover, OSU's effective F&A rate—once accounting for many grants and contracts for which a lower rate is levied—is only about 23%. This lower effective rate includes F&A waivers that have historically been granted without collecting revenue; certain federal agencies requiring a capped F&A rate for research; pass-through funding with no F&A; and uncollected revenue due to awards going through procurement. This underreporting in research expenditures puts OSU at a disadvantage. The university is currently undertaking an overview of the areas of underreporting with the goal of capturing the true expenses of doing research. OSU is required to submit a new F&A rate proposal to the US Department of Health and Human Services every two to three years, resulting in an F&A rate for most federal agencies, the majority of whom fund OSU research. We will be submitting our new proposal in December 2023.

TRANSITION TO THE NEXT STRATEGIC PLAN

As SP 4.0 enters its final year, much of what OSU had set out to accomplish to strengthen the research mission—building a strong foundation to support and advance research, innovation, and creative activities—has either been achieved or is making serious progress. There are key actions and projects that will continue, including: monitoring and assessing research services to keep up with growth in funding and an increase in federal regulations; building the foundation for a strong innovation and entrepreneurship environment; assessing the need for facilities and equipment; and building sustainable business models for core facilities, grants and contracts.

Preliminary thinking around OSU's next strategic plan with respect to research is focused on identifying areas where investments in faculty would build additional distinction in some of OSU's key strengths; emerging areas of promise given OSU's portfolio of strengths; fundraising opportunities that could advance and catalyze research and innovation needed to leap to the next stage of preeminence in research, scholarship, and innovation; and ways to leverage the Collaborative Innovation Complex and additional capacity in computation, AI, and materials science. Further building the innovation and entrepreneurship ecosystem as well as the potential of adding strategic partnerships with national labs to attract funding are also ideas currently in the mix. In general, actions in SP4.0 have led to substantial improvement in the systems, support and services provided to faculty researchers. As such, the next strategic plan can now prioritize catalyzing investment in selected areas of research and scholarship and further elevate transdisciplinary, larger-scale, collaborative research. In parallel, however, the university will continue the work to build a sophisticated administrative support infrastructure that provides the backbone for the success of our faculty and students' research endeavors.