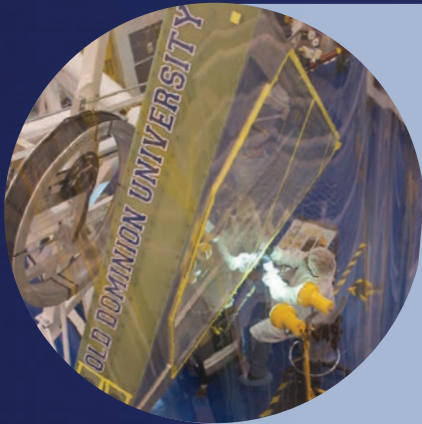


# INNOVATE LOCALLY TRANSFORM GLOBALLY

Old Dominion University  
Research Strategic Plan  
2015-20

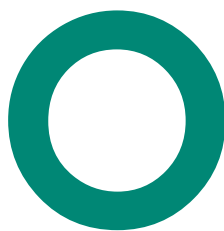


  
**OLD DOMINION**  
UNIVERSITY  
IDEA FUSION





## Executive Summary



Old Dominion University is Hampton Roads' comprehensive research university. At ODU, innovation and entrepreneurial application of knowledge and understanding are the foundations for its educational mission, as well as for the distinctive contributions ODU makes to the region, commonwealth,

and nation. ODU faculty have research, scholarly, and creative expertise that extends from basic discovery and invention to generalizable use and interpretation. ODU helps its faculty, staff, students, alumni, and other stakeholders innovate, translate, and apply ideas at local, national, and global scales. This plan is a framework for ODU faculty and administration working together, through the Office of Research, to create an entrepreneurial ecology within which to grow research, scholarship, and creative activities that also nurture ODU's instructional, outreach, and economic development missions.

**1. Pursue Regional Opportunities with National and International Significance:** Faculty-led working groups identify and develop plans to pursue specific regional opportunities for building distinctive ODU strengths in research, scholarly, and creative foci that have national and international significance.

**2. Build Critical Mass in Targeted Areas:** Leverage resources from Chairs, Deans, the Provost, Office of Research, and other university leaders, as well as from external partners, to effect cluster hires, seed funding, mentoring, and other strategies that build critical mass in targeted areas.

**3. Coordinate Across Disciplines and Academic Units:** Increase number, rewards for, and ease of collaborations across departments and colleges; increase number of undergraduate research opportunities; and increase interdisciplinary graduate program linkages and opportunities.

**4. Emphasize Excellence of Research, Scholarship, and Creative Activities Qualitatively as well as Quantitatively:** Develop metrics that recognize the reputational value of the quality of faculty research, scholarship, and creative activities, and the integration of such with the university's instructional, outreach, and economic development missions.

**5. Provide Organizational Support and Resources to Enhance Faculty Research, Scholarship, and Creative Activities:** Develop a dashboard that tracks specific policy changes and infrastructure improvements that provide enhanced support for individual faculty research, scholarship, and creative activities; use that dashboard to advocate for continued improvements in that support.

**6. Build and Maintain Shared Research Facilities, Equipment, and Support Staff:** Build a sustainable infrastructure of facilities, equipment, and support staff that can be shared across multiple faculty, departments, and colleges.

**7. Engage Partners Outside the University and Outside Academia:** Facilitate collaborations with outside groups, particularly non-academic partners, both to leverage additional expertise and resources for ODU projects and initiatives and to make ODU's capacity for innovation available to stakeholders outside traditional academic venues.

**8. Engage Faculty:** Create a Faculty Advisory Committee that has meaningful engagement with the Office of Research for ongoing collaboration in enhancing ODU's research, scholarship, and creative activities.



# Research, Scholarship, and Creative Activities Make Distinctive Contributions to ODU as a Comprehensive Research University

- Faculty who are active in research, scholarship, and creative activities bring an additional dimension to the university's teaching mission, giving ODU students the opportunity to experience the processes of discovery, creation, translation, interpretation, and application in their chosen fields of study.
- Students at research-intensive universities like ODU have the opportunity to engage in authentic, active learning through involvement in faculty-led research, scholarship, and creative activities. Students actively engaged in research, scholarship, and creative activities are given responsibilities that are unlike most that they encounter in the classroom. Seeing firsthand the positive results of fulfilling these responsibilities, or seeing the negative consequences when they are not fulfilled, is an important part of the professional development and basic leadership skills training for both undergraduate and graduate students.
- Comprehensive research universities like ODU engage and stimulate local and regional communities through the economic and cultural impacts of research, scholarship, and creative activities.
- University faculty and staff generate direct economic benefits to the region by winning externally funded grants and contracts.
  - ✓ University-generated intellectual properties feed regional economic development.
  - ✓ University-trained graduates provide the workforce for regional economic growth.
  - ✓ Universities contribute to the arts and cultures of their regions, helping create a quality of life that attracts businesses and workers.
- ODU's reputation for research, scholarship, and creative activities significantly contributes to
  - ✓ How ODU is perceived by potential students, faculty candidates, colleagues at other research institutions, and funding agencies,
  - ✓ How ODU's graduates are perceived by prospective employers and others,
  - ✓ How ODU is perceived by state leaders, donors, alumni, and the citizens whose taxes help support the university.
- Institutions like ODU are the most important community agents for advancing fundamental and translational scientific, technological, and cultural knowledge and interpretation through the combination of innovation and instruction that is at the heart of a comprehensive research university.

## A VISION FOR ODU RESEARCH, SCHOLARSHIP, AND CREATIVE ACTIVITIES<sup>1</sup>

- ODU will become the “go to” academic research partner for the Hampton Roads region of 1.7 million people.
- ODU will become the recognized leader for the regional arts community.
- ODU will be nationally known for the extent to which (and how) it integrates its research, scholarship, and creative activities with its instructional mission as a comprehensive research university.
- ODU will become a model for leveraging regional opportunities in research, scholarship, and creative activities to build a national and international academic reputation.
- ODU will develop an “entrepreneurial” research culture, in which faculty are empowered, resourced, and rewarded for innovation in how they construct and support their research, scholarship, and creative activities and through which the institution builds an innovative web of engagements with private sector, non-profit, and government partners.<sup>2</sup>

<sup>1</sup> The mandate to develop a five-year Strategic Plan for Research is outlined in the University Strategic Plan 2014-2019 (<https://www.odu.edu/content/dam/odu/units/strategicplan/docs/14-19/odu-strategic-plan-2014-2019.pdf>). See Goal 1, Objective 1, Item i.

<sup>2</sup> University Strategic Plan 2014-2019, see Goal 1, Objective 1, Item viii and Goal 5, Objective 2.



## GOALS FOR MEASURING MOVEMENT TOWARD OUR VISION:

### ■ Increase research expenditures

- ✓ Having just passed \$40 million in annual federal research expenditures, ODU's next "stretch" goal is to surpass \$60 million annually, a goal that depends to some extent on uncertain trends in federal funding for research.
- ✓ With strong investigator-initiated grant portfolios in several strategic areas, ODU now aims to win multi-investigator Centers of Excellence awards.
- ✓ Recognizing the uncertainty of continued increases in federal research funding, ODU will grow its industry-sponsored research to comprise 15% or more of its overall external funding, in part through master agreements covering multiple existing and future projects with key private sector partners.

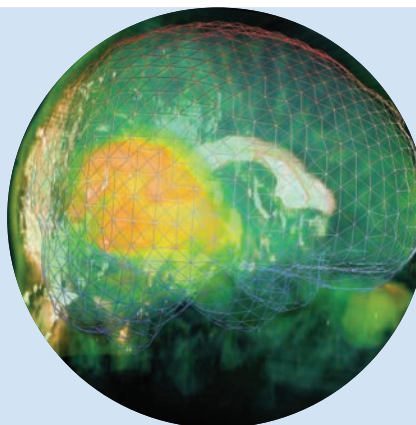
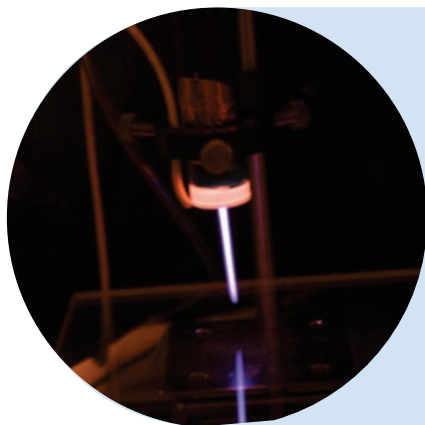
### ■ Enhance institutional reputation for research, scholarship, and creative activities at local, state, national, and international levels

- ✓ Faculty annually will win one or more awards or fellowships on the AAU list of prestigious awards and fellowships.

- ✓ Qualitative metrics developed as part of this plan will show annual improvement in the university's reputation for research, scholarship, and creative activities.
- ✓ ODU as an institution will attain consistent national and international recognition of its growing critical mass in three or more areas of research, scholarship, or creative activity.

### ■ Assist new regional businesses (either directly through ODU intellectual property or indirectly through ODU's contributions to the regional innovation ecology and workforce) and existing regional businesses

- ✓ Three or more new startups annually that can be linked to ODU IP or workforce training,
- ✓ Two or more new master agreements or educational partnership agreements annually with existing businesses to assist in product or service development,
- ✓ One or more successful SBIR or STTR awards annually that involve ODU researchers.



**\$68.1 million**  
*IN FY 2014 WAS SPENT  
TO CONDUCT RESEARCH*

# Actions for enhancing research, scholarship, and creative activities at ODU

## 1. PURSUE REGIONAL OPPORTUNITIES WITH NATIONAL AND INTERNATIONAL RELEVANCE:

Because of its location and history, Old Dominion University has a large number of regional opportunities for building research, scholarship, and creative activities that also will have national and international relevance and application.<sup>3</sup> More systematic identification and development of those regional opportunities is a key strategy in growing ODU's research enterprise and in branding ODU research, scholarship, and creative activities for external audiences.<sup>3</sup> The actions outlined in this section allow ODU faculty organically to identify and develop plans for these opportunities. However, a non-exhaustive unranked list of such opportunities might include the following:

- Coastal resilience
- Chesapeake Bay
- Sea level rise mitigation
- Port logistics
- Shipyard
- Transportation
- Tourism
- Criminal justice
- Jefferson Lab (physics and engineering)
- Regional arts community
- Military facilities
- Cybersecurity
- NATO
- NASA
- National Institute of Aerospace (NIA)
- Public schools (especially high-poverty urban and rural divisions)
- EVMS/Medical Systems/Biomedical
- DC Beltway Agencies
- Corporate opportunities
- Entrepreneurial small business venture facilitation

**ACTIONS:** The Office of Research will facilitate self-identified faculty working groups to develop plans for specific opportunities. The Office of Research or a college also can develop some opportunities that lack a self-identified critical mass but that have particular promise. The

Office of Research will coordinate planning for specific opportunities to leverage synergies and resources across them, but faculty leadership will be critical in shaping planning for each. Not all opportunities will generate a critical mass of faculty engagement or plans for which resources can be leveraged, which is a means for prioritizing a list that inevitably will have more opportunities than institutional capacity.

**TIMELINE:** Office of Research will kick off with a workshop on how to develop plans for specific opportunities in August 2015. Planning groups will work through the Fall 2015 semester, with another workshop in December 2015 to share plans across groups. Based on an evaluation of the specific plans and the availability of various kinds of support, Office of Research will coordinate resources to carry out some of those plans beginning in Spring 2016, with an emphasis on leveraging resources from departments, colleges, Office of Research, and the university centrally, as well as external partners. Office of Research will facilitate another round of initial planning groups in Fall 2016, with implementation in Spring 2017. Depending on the success of these first two cycles, subsequent cycles may be initiated in each academic year thereafter.

**GOALS:** The institutional target will be to complete at least six plans in AY 2015-2016. The Office of Research will leverage resourcing for at least three of those. Subsequently, in AY 2016-2017, the aim will be to complete at least four plans with the Office of Research leveraging resources for at least two. In five years' time, ODU will win at least two centers of excellence from Federal agencies based on this planning and resourcing process.

Success in each specific opportunity area will be mea-

sured by increased number of grant proposals submitted and awarded, collaborations with external partners, collaborations across departments and colleges internally, and evidence of reputational enhancement for the institution nationally and internationally.

**2. BUILD CRITICAL MASS:** To achieve national and international prominence, ODU must build a critical mass of faculty who engage in collaborative (and often interdisciplinary) activities in specific strategic areas. Doing this in specific areas can change research, scholarly and creative cultures across the university. Faculty should be engaged in identifying those strategic areas, as outlined in (1). Each focal area should be led by a core of multiple senior faculty who have requisite credentials and skills for intellectual and organizational leadership. Building that critical mass will require collaborations across disciplinary and college boundaries. Cluster hires, in which two or more faculty are hired in the same or adjacent academic years to provide expertise in a specific area (although not necessarily the same discipline, department, or even college) are a proven method for accomplishing this goal, and can be done with vacant and/or new lines by leveraging teaching needs with research opportunities. Other methods include targeted pilot funding to develop collaborative track records and preliminary data, partnering with other institutions (particularly those located in the region) to leverage external resources in building critical mass, and mentoring junior faculty to build their careers in these targeted areas.<sup>4</sup>

**ACTIONS:** Use the faculty-led opportunity planning process described above to identify areas in which ODU can productively pursue the development of "critical mass" in strategic areas. The Office of Research will

<sup>3</sup> University Strategic Plan 2014-2019, see Goal 1, Objective 1, Items ii and vi and Goal 4, Objective 3.

<sup>4</sup> University Strategic Plan 2014-2019, see Goal 1, Objective 1, Item vi.

facilitate leveraging resources from Chairs, Deans, the Provost, and other university leaders to effect cluster hires, seed funding, mentoring, and other strategies to build that critical mass. Relationships with regional partners (such as Jefferson Lab, EVMS, Naval Surface Warfare Center, NASA, etc.) also can be structured in ways that those partners contribute to ODU research, scholarly, and creative foci. For example, EVMS faculty already serve as collaborators on a number of grant projects, while Jefferson Lab researchers serve as on-campus collaborators through the Jefferson Scholar program. The Office of Research will coordinate planning for building critical mass in specific opportunity areas, but faculty leadership will be key in identifying those areas and in developing and implementing “critical mass” strategies. Because of limited internal and external resources, an entrepreneurial approach to leveraging and sustaining these opportunities is key to success.<sup>5</sup>

**TIMELINE:** Cluster hires and other strategies can be implemented as early as Spring 2016, and thereafter iterate with the ongoing opportunity planning process outlined above.

**GOALS:** Resources (including both vacant and new positions) should be leveraged for at least two cluster targets in each academic recruiting season. Additionally, at least two external partnerships should be matured in ways that contribute to building ODU critical mass in each academic year. Office of Research should align some of its intramural investments with emerging critical mass foci. Each targeted area should have a mentoring plan/process to better involve and provide career development for appropriate junior faculty.

Success in each specific opportunity area will be measured by increased number of grant proposals submitted and awarded, collaborations with external partners, collaborations across departments and colleges internally, and successful involvement of mentored junior faculty.

### 3. COORDINATE ACROSS DISCIPLINES AND ACADEMIC

**UNITS:** Greater institutional integration and interdisciplinary collaboration will require the removal of barriers that impede collaboration across disciplines and academic units. Communication across the university is critical, particularly between department chairs, who are key links in helping (and rewarding) faculty to assemble larger collaborations. Interdisciplinary collaborations build on the foundations of instructional programs - such as undergraduate research and interdisciplinary certificates and degrees - and help integrate collaborative and interdisciplinary research, scholarship and creative activities into the university’s teaching mission.<sup>6</sup>

**ACTIONS:** Establish a faculty-led working group to identify barriers and suggest solutions for collaborating across departments and colleges. Establish monthly meetings of associate deans, facilitated by the Office of Research, to enhance communication about research with and between colleges. Meet with department chairs to identify incentives that could motivate more collaboration across academic units, and implement some of those recommendations. Work with interested faculty and the Honors College to develop a plan for greater coordination of undergraduate research opportunities, particularly those that involve or have promise of becoming externally funded research projects. Work with Graduate Studies to enhance

opportunities and support for interdisciplinary graduate tracks, certificates, and similar mechanisms.

**TIMELINE:** Working group will meet in Fall 2015 and provide a report with recommendations for Spring 2016 implementation. The Office of Research will facilitate the implementation of those recommendations, beginning in Spring 2016. Planning for greater coordination of undergraduate research and more interdisciplinary graduate programs will follow the same timeline, but will be jointly implemented by Office of Research and Honors College and Graduate Studies respectively. Associate dean meetings will begin in Fall 2015.

**GOALS:** Increase number, rewards for, and ease of collaborations across departments and colleges such that the number of interdisciplinary collaborations (as measured by co-investigators from more than one department or college on grant proposals) double within three years of implementation of recommendations. Increase number of undergraduate research opportunities, and communication about those, particularly involving externally funded research projects, by more than three times within five years.

Success is measured by increases in multi-department and -college participation on grant proposals, number of undergraduate research opportunities associated with externally funded projects, and number of graduate students with interdisciplinary programs or components to their disciplinary programs.

<sup>5</sup> University Strategic Plan 2014-2019, see Goal 1, Objective 7.

<sup>6</sup> University Strategic Plan 2014-2019, see Goal 1, Objective 1, Item iv and Goal 1, Objective 6.

#### 4. EMPHASIZE EXCELLENCE OF RESEARCH, SCHOLARSHIP, AND CREATIVE ACTIVITIES QUALITATIVELY AS WELL AS QUANTITATIVELY:

The quality of faculty activities - including the prestige of publication venues, fellowships and awards, funding sources, and performance venues - as well as those activities that build toward institutionally sustainable ends (such as consortia, centers, working groups, etc.), contribute to the university's overall reputation in the same way as the quantity of those activities. Nevertheless, quality often is more difficult to measure (and reward) than quantity.

**ACTIONS:** The Office of Research will engage a faculty research advisory committee (detailed below) to develop indicators and measures for quality and integration of research, scholarship, and creative activities, such as:

- Prestigious fellowships and awards
- Citation indices and impact factors
- Prominence of work in high-profile review articles
- Invited plenary talks at national and international conferences
- Prestigious venues for performances and exhibitions

- Credit for using research funding to support graduate and undergraduate programs
- Extent to which undergraduates are involved in faculty-led research projects
- Advising and mentoring graduate students in the context of ongoing research scholarship, and creative activities
- Contributions to interdisciplinary projects
- Evidence of how scholarly and creative activities enhance the university's reputation
- Evidence of contributions to regional economic development

These quality indicators can be used both at the individual faculty level and at the departmental, college, and research center levels to identify "high performing" faculty members as well as "high performing" academic and research units.

The Office of Research will work with the Provost, Deans and Chairs to encourage incorporating those indicators and measures into annual evaluations and tenure and promotion guidelines. The Office of Research also will use both qualitative and quantitative criteria to

advocate for merit-based salary increases and robust faculty retention programs. In addition, the Office of Research will work with its faculty research advisory committee to find ways to increase recognition of and incentives for faculty accomplishments in research, scholarship, and creative activities.

**TIMELINE:** Develop indicators and measures during AY 2015-2016. Work to incorporate them during AYs 2016-2020.

**GOALS:** Provide faculty and academic administrators specific targets for pursuing and recognizing the quality of research, scholarship, and creative activities and the integration of such with the university's instructional and economic development missions.

Success will be measured by annual indices of prestigious faculty research, scholarly, and creative activities, which should show increasing recognition in each year.



**\$61.7 million**  
IN NEW GRANTS  
AND CONTRACTS AWARDED



## 5. PROVIDE ORGANIZATIONAL SUPPORT AND RESOURCES TO ENHANCE FACULTY RESEARCH, SCHOLARSHIP, AND CREATIVE ACTIVITIES:

In addition to building critical mass in strategic areas, each faculty member's individual activities contribute to the university's overall reputation, and should be supported.<sup>7</sup> Among those supports and resources are:

- ✓ Teaching load flexibility
- ✓ Release time policies
- ✓ Incentives for research productivity and prestigious accomplishments
- ✓ Equipment renewal and replacement
- ✓ Quantitative design and analysis support (statistics, etc.)
- ✓ Research leave
- ✓ Travel support
- ✓ Policies that grow the number of postdocs
- ✓ Mentoring junior faculty
- ✓ "Faculty Commons" (perhaps in rebuilt Webb Center)
- ✓ Sponsor regional conferences/retreats around specific topics
- ✓ Credit for supervising/sponsoring UG researchers
- ✓ Support and enhance availability of tools for collaboration (including high performance computing, library resources, etc.)

**ACTIONS:** The Office of Research will work with a faculty research advisory committee (detailed below) to develop and track a dashboard of policy changes and infrastructure improvements that will provide enhanced support for individual faculty research, scholarship, and creative activities. The Office of Research will take the lead in advocating for these changes and resources (both internally and externally), with the assistance of faculty.

**TIMELINE:** Dashboard will be completed in Fall 2015. Advocacy and dashboard updates will be iterative.

**GOALS:** Explicitly set out the policies and resources needed for increasing faculty success in research, scholarship, and creative activities. Advocate for (and track success in) enhancing that infrastructure.

Success will be measured by dashboard indices of policies and resources available to support individual faculty activities, as established by the faculty research advisory committee.

**6. BUILD AND MAINTAIN SHARED RESEARCH FACILITIES, EQUIPMENT, AND SUPPORT STAFF:** Many ODU faculty depend on specialized facilities and equipment as well as intramural funding to be able to carry out their research, scholarship, and creative activities. While several sources are available to initiate that infrastructure (for example, faculty startup, ETF funding, MRI and other external competitions), maintaining, replacing, and enhancing that infrastructure often is a challenge.<sup>8</sup>

**ACTIONS:** Form a working group comprised of faculty from units that have high needs for specialized facilities, equipment, and other kinds of infrastructure support, along with leaders of key support units, to (a) identify a funding model to maintain and enhance existing infrastructure, (b) establish institutional priorities and policies to build out that infrastructure, (c) propose areas in which the university could consolidate assets with greater cost efficiency, and (d) propose incentives for faculty and academic and research units to be creative in reducing costs by sharing facilities, equipment, and support staff. There is particular potential for leveraging research infrastructure across

departmental and college boundaries. Consideration also should be given to virtual as well as physical shared infrastructure. In general, facilities and equipment that are shared should be given funding and space priority.

**TIMELINE:** Working group will meet in Fall 2015, with report due at the end of the semester. Office of Research will work with its Faculty Advisory Committee to prioritize and implement working group recommendations beginning in Spring 2016.

**GOALS:** Build a sustainable infrastructure for facilities, equipment, and support staff that emphasizes resources shared across multiple investigators and multiple departments, colleges, and centers.

Success will be demonstrated by enhancing existing and establishing additional common facilities, equipment, and support staff in each year, by growing usage of that common infrastructure, by growth in resources invested in that infrastructure, and by developing and implementing sustainable business plans for each.

<sup>7</sup> University Strategic Plan 2014-2019, see Goal 1, Objective 7.

<sup>8</sup> University Strategic Plan 2014-2019, see Goal 1, Objective 1, Item iii.

## 7. ENGAGE PARTNERS OUTSIDE THE UNIVERSITY AND OUTSIDE ACADEMIA:

In an era of flat or decreasing federal support for academic research, partnerships with non-federal entities, and particularly with the private sector, increasingly will be critical to maintain a robust portfolio of funded projects. Those partnerships will be based more on establishing mutual benefits from research, scholarly, and creative activities and building long-term relationships than on specific investigator-initiated proposals and projects, and so must be nurtured in different ways.<sup>9</sup>

**ACTIONS:** Establish a faculty/external stakeholder working group to identify barriers and suggest solutions for increasing ODU collaborations with outside groups, particularly non-academic partners, and as the basis for recruiting an ongoing External Research Advisory Board. Office of Research will take the lead in implementing those solutions. At the same time, identify priority regional private sector partners for research collaborations. Mature two or more of these partnerships per year into umbrella master collaboration agreements that support multiple projects and both research and instructional activities. Work with colleges to develop a plan for faculty-led student innovation labs that can collaborate with private sector companies and non-profits on applied and translational research projects in an instructional context.

**TIMELINE:** Working group formed in Fall 2015, with continuing meetings into Spring 2016. The working group will be matured into an External Research Advisory Board in Spring 2016. Working group recommendations will be prioritized and implemented by the Office of Research during Spring 2016, with assistance of the Office of Research Faculty Advisory Committee and the newly formed external board.

Office of Research will lead planning for student innovation labs in collaboration with specific colleges commencing in Fall 2015.

**GOALS:** Increase engagement in research, scholarship, and creative activities with private sector partners through master agreements that cover multiple current and future projects. Those master agreements should include research as well as instructional activities, involving both students and faculty.

Success will be an increase in the number of external and non-academic partnerships for research, scholarly, and creative projects - and particularly in private sector partnerships and their sponsorship of projects. This can be measured by the number of executed non-financial agreements, proposals and awards for sponsored research agreements, and research expenditures from industry-sponsored awards. Success also will be measured by the number of collaborations between faculty-led student innovation labs and outside entities.

**8. ENGAGE FACULTY:** Faculty involvement is essential in shaping the direction of and support for research, scholarship, and creative activity at ODU. While the Faculty Senate already is engaged through its Committee D, a dedicated Faculty Advisory Committee for the Office of Research can amplify and focus that engagement.<sup>10</sup>

**ACTIONS:** In consultation with the Faculty Senate, establish a Faculty Advisory Committee for the Office of Research (membership and selection to be determined), with specific responsibilities (some detailed above). Involve faculty in working groups and other planning efforts (also detailed above). Improve communication

to faculty about opportunities, decision-making, and successes in research, scholarship, and creative activities by working with the Faculty Advisory Committee to identify optimal means for regular communications and interactions.

**TIMELINE:** Consult with Faculty Senate about appropriate configuration and selection process for a Faculty Advisory Committee to the Office of Research in early Fall 2015. Constitute the advisory committee in mid-Fall 2015.

**GOALS:** Create a Faculty Advisory Committee that has meaningful engagement with the Office of Research, including responsibilities for specific tasks and areas (described above).

Success will be evidenced by increased faculty trust in the Office of Research, heightened and more effective communication between Office of Research and faculty, and by Office of Research's advocacy for faculty-led research, scholarship and creative activities at ODU.

<sup>9</sup> University Strategic Plan 2014-2019, see Goal 1, Objective 1, Item ii.

<sup>10</sup> University Strategic Plan 2014-2019, see Goal 1, Objective 1, Item iv.







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