Research Core Facility (RCF) Taskforce Analysis and Recommendations: June 4, 2018

Problem Statement
The current organizational structure for RCFs was established in 2014. Prior to that time, such research facilities operated either within the confines of an institute, center or department or as independent entities. The taskforce reviewed the individual RCF strategic plans and the status of the RCFs as a whole and found that most of the facilities are unable to sustain the desired level of operation without incurring additional deficits under the current configuration. This problem has gotten increasingly worse with unplanned expenditures of over $600K for FY18 to backstop the RCFs. Additional questions/concerns arose regarding (i) the appropriate scale and support of RCFs, (ii) rate setting to maximize faculty competitiveness while pursuing sustainable cost recovery, (iii) best practices for operation and management of the RCFs, (iv) how new core facilities, including those in the Knight Campus, should be established, and (v) when, and how, changes should be made when core use decreases to the point where the facility is not financially viable. The taskforce examined each of these issues in the context of addressing the questions posed in the charge document (Appendix A).

Overview
Research Core Facilities (RCFs) are those facilities that provide shared access to research instrumentation and services to the broader research community. The primary purpose of RCFs is to support and advance the research and training missions of the university's researchers. RCFs should promote research excellence and be viewed as strategic assets that catalyze faculty and student research. RCFs also support engagement with outside users in ways that support strategic partnerships that benefit UO researchers. Use by external collaborators or private sector clients can provide support for equipment acquisitions and provide revenue that can help support the RCF operations. RCFs typically receive some form of institutional support.

RCFs should be established and managed based upon the following principles *regardless* of where they are housed. RCFs should:
- Provide open access to the entire UO community regardless of the facility's management unit, forms of institutional support and origin of the instrument
- Be accessible by academic, government, corporate, and private users beyond the UO community
- Maintain high standards of quality control and robust mechanisms for faculty/user engagement
- Maximize the value of Director and staff expertise in advancing UO research – encourage a professional collaborator model
- Not duplicate capabilities across facilities or administrative structures, except in rare circumstances
- Be supported by funding models that are transparent and scale with facility size
- Be founded and supported in ways that advance the collective research portfolio of the university.

RCFs can be categorized based upon the expanse of the research community served and the level of institutional commitment to the facility. On average the OVPRI currently invests ~$2M in RCFs each year through subsidies and infrastructure investments, but an increasingly large proportion of this investment is unplanned back stop at the end of the fiscal year. While this is a sizable portion of indirect costs to use, these investments support a large (~$70M) grant portfolio.

Three tiers of facilities are common within the OVPRI's RCF program at the University of Oregon:
- **Tier 1:** A facility that houses multiple pieces of shared instrumentation or services that broadly serve many departments/units and outside customers. Typically managed by a director, with multiple staff.
- **Tier 2:** A basic core facility housing a limited instrument set or service and where the facility director is the primary staff member running the facility.
- **Tier 3:** Unstaffed instrumentation, usually managed by trainees in a key user's research group. These facilities provide open access, yet offer limited support for internal and external use.

Most current RCFs are Tier 1 facilities, whereas some of the smaller facilities (e.g., the Greenhouse facilities) are Tier 2. Although CAMCOR is a Tier 1 facility, it also houses unstaffed instrumentation of the Tier 3 type. The taskforce found some consensus in recommending a tiered approach to RCFs where under OVPRI, most instruments in Tiers 2 and 3 should be incorporated within a broad umbrella of a Tier 1 facility, if a Tier 2 or 3 facility is to be centrally managed.

Tier 3 facilities housed under the auspices of the OVPRI differ from instruments or facilities shared on an informal basis. OVPRI Tier 3 facilities must follow UO and federal guidelines that have set requirements including: equal access to all users regardless of affiliation, clearly articulated rates and mechanisms for access, and collect fees for use that generate sufficient cost recovery for sustainable operation of the instrument. If an instrument or facility intends to meet these requirements, a proposal for establishing a Tier 3 facility should be made to the OVPRI. The OVPRI provides basic billing/accounting services to those instruments in the Tier 3 category. The Tier 3 classification provides a possible on-ramp for emerging new facilities and an off-ramp for those that have experienced diminished use and support.

A recent trend has been to place higher priced instruments, often procured with startup funds, into existing RCFs, but in an unsupported manner (Tier 3). Although the taskforce viewed this approach as a productive way to house such instruments, the lack of central support for their operations puts their long-term viability at risk. If the trend of placing unsupported instruments within RCFs continues, some mechanisms will be needed to ensure that these strategic investments are supported in a way that is sustainable.

Financial Support Model and Incentives
The RCF taskforce agreed that the current model of institutional support, which provides support equivalent to the Director's salary for each RCF, needs to be changed. That model encourages the formation of the smallest feasible core facility, disincentivizes RCF core principles, and is not scalable for different sized RCFs. The taskforce recommends that a subsidy model that provides RCFs a percentage of their labor costs would be a more equitable and sustainable model that could be scaled from small to large RCFs. Based upon nationwide surveys of core facilities and our own experience, a subsidy equivalent to ~40% of labor costs is a reasonable target and is close to our current effective investment.

The taskforce recommends that we migrate toward a new subsidy model and that careful attention be paid to creating a funding, staffing and management transition plan for all RCFs, with particular attention paid to those that may receive less funding under the new model.

The taskforce recommended that the OVPRI work with each RCF to identify opportunities to incentivize RCF staff and faculty to build and support RCFs that maximize the institution's ability to enhance research. One example is to retain institutional support provided at the start of each fiscal year in ICC accounts (as opposed to service center accounts) so that, if an RCF ends that year with a positive balance, it could use accrued contributions from prior years in ICC to recapitalize the facility.

Given a reasonable level of institutional support, a question remains regarding how to deal with facilities that are still unable to bring in enough internal and external funds to support the facility. The taskforce recognized that any new funding model will need to address options and actions for RCFs that are unable to meet cost recovery goals. In particular, it is important that clear steps be taken after the second consecutive year that an RCF does not meet performance and financial goals. One option for those facilities that serve users from primarily a single unit, such as a department, is that the facility may move to that department for ongoing support. Second, a change in Tier (for example to Tier 3) and/or a merger with another RCF might be recommended. Finally, a facility that ceases to have university users might be sunset.

Rate Setting
The taskforce recommends that the annual rate setting procedures be a strategic process that balances research excellence with cost recovery. Several of the key principles for rate setting are:
1. An up to date rate survey of rates at comparable institutions must be incorporated. Internal rates should, whenever possible, be set below the market rates so that UO faculty gain a competitive advantage. It is useful to consider the cost per data point or experiment, (i.e. rather than cost per hour of instrument time) as a metric that can be assessed from a competitiveness perspective to account for all factors (e.g. higher personnel costs at the UO).
2. External industrial rates must be set so that they do not undercut commercial providers of the same service (to comply with federal regulations) and include more than our current percentage recovery of indirect costs.
3. Rates for strategic partners, such as other universities, should be set so as to encourage mutual collaboration and benefit for the UO and the partnering university. The OVPRI should actively work with the other Oregon universities to set rates for mutual benefit.
4. Internal rates should be set in such a way that the use of cutting edge instrumentation that would otherwise sit idle and unstaffed is not discouraged. There should be strong incentives to use idle, unstaffed instruments around the clock.
5. Directors and FACs should be empowered, and/or tasked with, developing strategic rate plans that prioritize research excellence and productivity, yet meet cost recovery goals.

Equipment Purchases and Recapitalization
The taskforce found that there is a need for robust planning at both the individual RCF and OVPRI levels for reinvesting in capital equipment within RCFs. Current approaches typically rely on support from federal grants (e.g. NSF-MRI), private foundations (e.g. Murdock), or direct investment by the RCF or the OVPRI. In addition to tapping current sources of funding, new funding streams, such as, philanthropy will be needed. To that end, the task force recommends:
1. All RCFs need to engage users, their FAC and staff to generate concrete written plans for recapitalizing their instrumentation.
2. The OVPRI should provide guidance on proper use of equipment reserve funds and develop strategies for RCFs to "save up" for equipment replacement in a strategic manner, including allowing RCFs flexible use of VPRI subsidy.

3. The OVPRI should develop concrete plans in collaboration with Advancement for the purchase and support of cutting edge equipment.
4. RCF directors and FAC chairs should interface with departmental recruitments to ensure that their facility can meet the needs of incoming faculty, and if not, can advocate for startup investments that place appropriate instrumentation into their facilities.

Organization, Management and Operations
1. The taskforce reviewed the strategic plans of all the RCFs and was struck by the differences of scale between the smallest and largest facilities. The taskforce recognized that, at larger scale, RCFs could be more resilient and able to buffer against fluctuations in revenue and technology changes in equipment with an adequate subsidy model. For this reason, the taskforce recommends that some of the smallest RCFs could be consolidated to gain efficiencies of scale and to connect research functions that have heretofore been isolated, provided the consolidation embodies operational and administrative efficiency and operational synergy and appropriate technical expertise.
2. In addition to the business model, the taskforce examined the mechanisms for oversight and operation of the RCFs. The taskforce concurs with recent efforts to streamline business operations, including the approach to the annual costing process.
3. The taskforce further recommends that the roles of the faculty users, FAC, Director, overseeing AVP and RCBS be more clearly defined. In particular, there is some debate over which leadership aspects of the RCF should derive from the FAC vs. the Director. In general, the taskforce preferred and recommended a more balanced model with the Director having autonomy over day-to-day operations and the FAC providing long-term vision for the facility.
4. The taskforce thought it important to provide some recommendations regarding the startup and sunsetting of RCFs. New RCFs should arise only when there is a well-conceived and appropriately vetted plan that illustrates the breadth of the user base, the potential for internal and external use, the benefit for research productivity across campus and the model for cost recovery that adheres to RCF principles. The taskforce recommends that a useful strategy for starting new cores is to incubate them within existing, stable RCFs until they are capable of standing on their own.
5. The taskforce also considered what to do when an RCF or specific equipment or services within a given RCF are no longer needed, no longer being effectively provided given changes in technology or need, or the user base has declined to a small number of users. The taskforce recommends that a variety of scenarios be considered and acted upon. These might include the following: (1) If the use is primarily from a small group from a single department, the facility should revert to a departmental facility; (2) the facility should drop in Tier to reduce the cost associated with staffing; (3) the services should be outsourced to other institutions; (4) if the use of a facility has dropped to near zero, the facility or services should be phased out on a clear timeline, typically not more than 2 years. In determining which scenario is most appropriate for a given set of services, the impact of the change on faculty research must be considered.
6. The taskforce recommended that the OVPRI provide guidelines and direction to ensure that all service centers that are subject to the Uniform Guidance (because they accept or could accept federal funds) adhere to federal, state, local, and university policy.
7. The taskforce had several other smaller recommendations:
   a. OVPRI/RCFs should solve current issue with pass-through costs to external clients to avoid paying extra tax
   b. OVPRI should develop a procedure for RCF self-evaluation
   c. OVPRI should facilitate EPCS checkboxes for RCFs to help track potential future usage

d. OVPRI should develop clear goals for success and appropriate metrics for RCFs
e. Central methods to support the efforts of the RCFs and Directors should be developed in the general areas of usage data collection, IT support, web development and general marketing.

Coordinating Core Facilities with the Knight Campus
Finally, the taskforce examined the possible impacts of the Knight Campus on the operations of RCFs. The establishment of the Knight Campus represents an important opportunity to expand research capabilities for UO researchers, and the Campus is planning to make significant investments in space and equipment for research facilities. Some of those are new facilities that will stand alone, whereas the operations of others might be intrinsically linked to existing facilities. The details of organization, institutional support and oversight will need to be developed between the Executive Director of the Knight Campus and the VPRI. The taskforce evaluated a variety of scenarios for consideration by leadership that are included in the taskforce working document.

Implementation
The taskforce recommends that the systemic changes proposed herein be implemented in such a way that they complement and reinforce the strategic plans developed by the individual RCFs. The taskforce also recognizes that recommended changes suggested in this document may have significant impacts on RCFs and existing research programs. For both of these reasons, we recommend that the implementation strategy involve faculty and directors in refining and implementing any proposed changes. *Changes that might influence grant expenditures need to be widely communicated and done so as far in advance as possible, with an appropriate glide path.* Any immediate changes need to anticipate impacts on grants and be structured to minimize any effects on sponsored research.

Appendix A: Charge to the Taskforce: Research Core Facility Strategic Planning

The strategic planning process aims to refine and/or develop approaches to ensure that UO researchers have access to state-of-the-art facilities that accelerate research progress and create competitive advantage for UO researchers and their collaborators. To this end, the process has three overarching goals:
1. Establish plans and mechanisms that ensure that UO's research core facilities attain and maintain cutting-edge facilities to support research
2. Refine or define cost-effective and efficient business approaches that maximize support for research, ensure compliance to federal regulations and are based upon transparent mechanisms for resource allocation.
3. Anticipate and plan for expansion of research core facilities through the Knight Campus for Accelerating Scientific Impact and across the UO campus.

The OVPRI has reviewed the plans from each RCF. The individual plans and the OVPRI reviews are available as reference to the task force.

The taskforce is charged with developing a report that makes recommendations to the OVPRI about how best to achieve the three overarching goals. The taskforce should:
- Consider existing and novel approaches to ensure that research core facilities are established and sustained at the leading edge.
- Examine the strategic plans collectively, and in the context of approaches at other institutions. What systemic changes (if any) are needed to improve support of research, research training and research competitiveness?
- Are there common challenges faced by all Core Facilities that could be addressed by changes in procedures and/or business models?
- Is the current organization of the research core facilities the correct structure to achieve the research mission?

The taskforce is further divided into three subgroups that will focus on recommendations related to the three overarching goals.
- Subgroup A: Evaluate financial approaches to support operations and equipment.
    - Are there opportunities for improvements?
    - Evaluate existing business model and mechanism(s) for institutional support., consider models at other institutions and suggest improvements.
    - What constitutes a sustainable business model given limited resources?
    - What are the relative pros and cons of providing the RCFs a fixed allocation vs. providing a percentage of costs or revenue?
    - Should there be a life science version of CAMCOR that brings together various facilities into one organization? Should CAMCOR be broken into subfacilities?

- Subgroup B: Evaluate organizational structures, faculty engagement and administrative oversight.
    - Are there opportunities for improving engagement, oversight and efficiency?
    - What are the best practices for collaboration between faculty, staff and OVPRI leadership?
    - How can we tailor approaches to the needs of individual core facilities while common core operating principles?
    - Are there further opportunities to enhance efficiency of RCF operations?

- o How can we incentivize faculty and staff to write more proposals to recapitalize the RCFs?

- Subgroup C: Examine approaches to setting up new RCFs and collaboration with the Knight Campus.
    - o Will existing business and administrative models meet needs for these RCFs and the Knight Campus? If not, what changes may be needed?
    - o If the Knight Campus is providing space, capital investment and operating funds for some facilities, how will the Campus have a voice in the oversight and operation of those facilities?
    - o What should be the best practices for launching new RCF on either the main campus or Knight Campus?

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