Task Force on Shared Facilities – Charge Letter

September 1, 2024

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Members:
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Xiao Zhu, Associate Vice President for Research Computing, UW-IT

Dear colleagues,

Thank you for agreeing to serve on the Office of Research Task Force on Shared Facilities. In recognition of the importance of Shared Facilities (also referred to as Core Facilities) to the UW research enterprise, I am convening this task force to identify cross-cutting needs of our Shared Facilities and opportunities for the Office of Research to better support them in enabling high-impact research. The scope will be limited to facilities that support multiple principal investigators in doing experimental work involving equipment that requires specialized staff support to maintain.

Specifically, I am charging the Task Force to:

- Survey the UW landscape to understand the breadth of our tri-campus facilities and their different financial models;
- Interview stakeholders from representative Shared Facilities, including staff, users (internal and external) and any oversight groups (e.g. advisory board, Research Assoc./Vice Deans);
- Benchmark support structures at peer universities (public universities with large research programs); and
- Make recommendations for the most impactful ways the Office of Research can support UW Shared Facilities, potentially in partnership with other central UW offices.

In doing this work, please be sure to get input from the broader community, including Shared Facilities not represented on the task force. It may be useful to put together a group of "consultants" (UW faculty and staff, or external facility users/advisors) to help with this effort.

Potential topics to consider might include (but are not limited to): staff retention, instrumentation refresh plans, financial management strategies, student involvement, options for process improvement for facility modifications, and long-term facility consolidation, renovation or expansion needs. Recognizing that there are a variety of Shared Facilities at UW with differing needs, you should focus on issues that cut across multiple facilities.

In addition to suggestions for policy, process, or practice changes and priorities for financial investments, the Office of Research would like recommendations on a framework for sharing best practices (e.g. user services, working with external partners) and desired attributes of a university-wide online listing of shared facilities. Please also point out any opportunities for cross-core service sharing.

Maria Huffman and Andrew Oberst will co-chair the Task Force. It is our expectation that you will meet 3-4 times prior to delivering a report to my office by January 30, 2025. The report should include a summary of the findings of the survey, interviews, and benchmarking work, in addition to the recommendations. Please acknowledge the contributions of consultants if there are people who you have designated to serve in that role. When the report is completed, I would like to meet with the committee to discuss the findings and recommendations. Committee members will also be invited to present findings and recommendations to the Research Advisory Board.

I would like to join some portion of the first Task Force meeting to discuss this charge and answer any questions you might have for me. Heather Herrera will be contacting you about scheduling the first meeting.

Thank you again for agreeing to serve on this important Task Force.

Mari Ostendorf
Vice Provost for Research
Endowed Professor of System Design Methodologies
Electrical & Computer Engineering Department
University of Washington

Shared Facilities: Status and Recommendations

A. Executive Summary

In September of 2024, the Vice Provost of research Mari Ostendorf, in recognition of the importance of Shared Facilities (also referred to as Core Facilities) to the UW research enterprise, appointed and charged a 10-member Task Force (attachment A) to identify cross-cutting needs of Shared Facilities and opportunities for the Office of Research to better support them in enabling high-impact research. The scope was limited to facilities that support multiple principal investigators in doing experimental work involving equipment that requires specialized staff support to maintain.

In pursuit of this goal, the Task Force solicited detailed input from both senior faculty/staff in charge of shared resources, and from users of shared resources across UW campuses. Responses to a detailed survey completed by 45 shared resources staff members, as well as a shorter survey completed by 130 facility users, are included in Attachment B (links). The Task Force also benchmarked UW's approach to shared facilities with several peer institutions (Attachment C).

The data gathered by the Task Force highlight several key areas in which the UW should improve its support for shared resources and their staff. These recommendations are described in detail, including prioritized short- and long-term goals, in Section D. As a high-level summary, recommendations can be broadly divided into three interrelated areas:

- **Improved communication, collaboration, and oversight**: The current shared resources landscape at the UW has grown organically over years; most facilities operate as stand-alone entities, and the existing master list of shared resources, equipment, or services is incomplete, not user-searchable, and difficult to navigate. Coordination between shared services is minimal; financial sustainability is a prominent concern, but central funding generally falls far behind that provided at all benchmarked peer institutions. Also absent at the UW are oversight entities that could identify and prioritize the needs of the UW community to effectively allocate funding or focus philanthropic efforts. We therefore suggest that an essential first step is to catalog the UW's shared facilities, creating user-searchable tools that transparently communicate services and how to access them; this effort would also enhance user engagement and promote full utilization of shared facilities. With this information in hand, we suggest that facilities that offer complementary services or that share user bases be grouped together under the oversight of committees that are empowered to promote the sharing of equipment and software tools, assist with staffing and HR challenges, and eventually prioritize needs and disburse funds to address them. These goals are described in more detail below.
- **Financial stability**: Concerns about financial sustainability pervaded responses from shared facility staff. Notably, financial models in which user fees and depreciation are relied upon to fund the purchase of major equipment were considered inadequate to provide cutting-edge equipment without passing on unreasonable costs to users. This conclusion was consistent with the findings of peer institutions who have recently undertaken similar efforts to reform shared resources; these peer institutions generally

provide substantially more central funding for shared resources than does the UW. The need for sustained investment in shared facilities—coupled with improved oversight, reduced redundancy, and the coordination and prioritization of major purchases by oversight entities, as described above—is therefore pressing. These efforts should include both short-term funding from existing budgets and coordinated efforts to enhance state-level and philanthropic investment.

- **Operational efficiency**: Input from both facility managers and users identified numerous sources of operational inefficiency. These include ongoing challenges related to Workday implementation, difficulties hiring, training and retaining skilled staff members, lack of effective and standardized communication with user groups, lack of benchmarking and accountability year-on-year by shared resources, and redundant or discordant procedures related to accounting, billing, booking, and strategic planning. Addressing these issues via improved communication, benchmarking and sharing of best practices should be a key goal of new oversight entities. These efforts should include shared scheduling of tools, support and standardization of websites, and possible administrative support shared across cores that are not individually large enough to warrant their own FTE in this role. Coordination within the Seattle research community could also be improved; for example, the Benaroya Research Institute's sequencing core provides outstanding and cost-effective services and is used by many UW researchers; UW's sequencing shared facilities should work to coordinate with, learn from, benchmark against, and avoid redundancy with this local facility.

In this report, we first discuss the current shared resources landscape at UW, including observations gleaned from surveys of shared resources management as well as the user base (Section B). We then provide an overview of information provided by our benchmarking efforts, including comparisons between practices by peer institutions and current UW practices (Section C). Finally, we provide detailed and prioritized short- and long-term suggestions for improving shared resources at the UW (Section D).

B. Overview of the UW Shared Facility landscape, and results from surveys of facility managers and users

Overview of the UW Shared Resources Landscape

The current landscape of shared resources at UW has grown organically over decades, and is characterized by a lack of cohesive organization, limited sharing of resources or best practices, and few mechanisms to ensure continued operation in the event of budget shortfalls. Indeed, simply defining and contacting UW shared resources represented a substantial initial challenge for the Task Force. The most current list of UW shared resources was compiled years ago by the Institute of Translational Health Sciences, and is maintained by the Office of Research: https://www.washington.edu/research/shared-research-facilities-resources/ However, this list has been updated only sporadically, is not user-searchable, and generally only provides links to resource websites (where available.)

In gathering information on shared resources at the UW, we sought to define shared resources as facilities that provide services to multiple labs or UW faculty members, and that include specialized equipment and/or expertise dedicated to the services provided. However, this definition encompasses a huge array of shared facilities, equipment, and user interaction models. These range from large, well-staffed and highly specialized facilities such as the Washington Nanofabrication Facility (WNF) down to individual investigators who seek to defray the costs of instruments by offering them to colleagues via chargeback models. Shared facilities are associated with all three UW campuses and include non-local facilities such as the East Africa STI Laboratory in Mombasa, Kenya.

In short, the variability of UW's shared resources, and the lack of a catalog defining and categorizing them, represents a significant initial barrier to their improvement. Given this, no single solution or model can be applied to all UW shared resources, and only the broadest generalities can be drawn across the shared resource landscape. These observations underpin our suggestion to **group cores with shared equipment, services, or user bases together, encourage communication, and provide oversight and eventually prioritized financial support.** As one example, we suggest that many cores that support biomedical research could benefit from closer communication and shared best-practices. UW has several cores focused on different aspects of biological imaging, histology, and cell analysis, which would benefit from enhanced communication, shared resources, and reduced redundancy.

B1. Input from Core/Shared Facility Staff and Management

The shared facilities across the UW support diverse disciplines and users, ranging from faculty to technical staff and students. We received direct input (via online survey responses) from 45 shared facility directors or staff, representing 30+ departments and units; the results of this survey highlight key operational challenges, opportunities for improvement, and suggestions to strengthen long-term sustainability and impact.

Summary of key observations:

Operational Challenges

Financial Model:

- Today Primary funding comes from chargebacks (44%), external grants (25%), departmental funds (16%), and limited central university support (9%).
- **Financial sustainability is a concern for 89% of facilities, with 40% identifying it as "extremely challenging."**

Staffing and Retention:

- Staffing challenges are widespread: 78% report difficulties, with 31% finding retention "extremely challenging."
- Salary levels and career growth opportunities are top concerns, with HR processes cited as a barrier by ~50% of respondents. Specific issues include outdated or insufficient job descriptions, unclear paths to raises and promotions that are especially difficult for staff having critical service roles, proper competitive salary

comparisons depending on staff experience, expertise and specialization, and long delays in job postings and offer generation.

Equipment Maintenance and Replacement:

- **80% face challenges in maintaining or replacing critical equipment.**

Space Limitations:

- 62% report space constraints, impacting operational efficiency and user demand.

User Demand vs. Capacity:

- 73% experience capacity issues, hindering access and service quality. This covers a wide range of issues from having available capacity and not enough users to not having enough professional staff or the proper equipment to address user needs.

Engagement and Visibility

- User Engagement: Regular workshops (36%) and surveys (25%) are common, but broader outreach and advisory boards are limited.
- Student Involvement: 58% of facilities engage students in various capacities, highlighting a need for structured training opportunities. For those facilities that do not engage students, sharing best practices from the facilities that have successful programs can be a quick way to pave the way for student engagement. Increasing awareness of existing options to students is key.
- Awareness of Facility Capabilities: 38% of users are unaware of available services, indicating a need for better communication and outreach.

Facility Needs and Recommendations communicated by Shared Facility staff:

Staffing:

- Enhance salaries and career pathways to increase specialized personnel retention and retain institutional knowledge.
- Streamline and standardize hiring and onboarding processes; only 22% report having sufficient resources for hiring and onboarding. 9% report severely lacking resources/processes and 11% report having no formal processes in place.

Financial Support:

- Increase central funding to reduce reliance on chargebacks and grants, particularly for major equipment purchases. This suggestion is supported by the observation that the UW lags its peers in support provided to shared facilities (see Section C below.)
- Consider endowments, philanthropic outreach and seed grants for sustainable funding.

Infrastructure Improvements:

- Prioritize equipment upgrades (26%) and facility expansion (13%) to meet user demand.

Operational Efficiency:

- Simplify administrative processes (31%) and improve communication channels (28%).
- Address Workday issues that impede smooth operations (separate report on specific challenges related to Workday is available as attachment D).

Visibility and Outreach:

- Develop a searchable, centralized website with service descriptions, equipment availability, pricing, and user testimonials.
- Increase outreach within UW and externally to attract new users.

B2. Input from Facility Users

Demographic makeup of respondents:

- Tenure-track faculty: 35%
- Non-tenure-track faculty: 18%
- Staff: 16%
- Postdocs: 12%
- Students: 14%
- Other (external users): 5%

More information about the specific departments can be found in attachment E.

Summary of key Observations

Facilities and Resources Available:

- Core/shared facilities vary widely in scope, including microscopy, flow cytometry, genomics, imaging, and computational resources.
- Examples include major resources like WNF (Washington Nanofabrication Facility), MAF (Molecular Analysis Facility), WCET (Washington Clean Energy Testbed), CAF (Cell Analysis Facility), and Hyak (high-performance computing).
- Several responses highlight under-resourced areas, such as the lack of dedicated core facilities for cell and molecular biology or inadequate shared lab spaces.

Usage Patterns:

- Responses highlight a mix of departmentally managed facilities (e.g., machine shops, spectroscopy equipment, and imaging centers) and institution-wide cores (e.g., histology, flow cytometry).
- External corporate users are a notable minority, primarily accessing facilities like WNF.

Challenges Identified:

- Under-resourced facilities: Many users expressed the need for more lab spaces, shared equipment, and technical support personnel.

- Awareness issues: Some respondents are unaware of existing cores or unsure if their equipment qualifies as shared resources.
- Coordination gaps: Some facilities operate informally as shared resources, lacking formal cost-center status or structured management.
- Scheduling: Long wait times and rigid scheduling policies limit research flexibility.
- Cost: High service fees and inconsistent pricing deter usage, especially for early-career researchers.
- Staffing: Lack of technical support reduces equipment usability and increases faculty burden.

Recommendations communicated by users:

Improve Facility Accessibility and Awareness:

- Develop a centralized directory listing available cores, equipment, and services, with clear user guidelines.
- Increase outreach and training to improve awareness of shared resources among faculty, staff, and students.

Address Resource Gaps:

- Prioritize investment in under-resourced areas such as cell and molecular biology, genomics, and interdisciplinary research labs.
- Expand technical staff support for shared facilities to enhance usability and maintenance.

Formalize Shared Resources:

- Standardize the management of department-based resources that operate informally as shared facilities (e.g., spectroscopy and imaging equipment).
- Transition high-demand facilities to cost-center models where feasible to ensure sustainability.

Leverage External Partnerships:

- Strengthen collaborations with external users, particularly in high-demand facilities like WNF and WCET, to boost funding and innovation potential.
- Only 36% of facilities hold regular user meetings, and engagement efforts are inconsistent.

C. Benchmarking: Comparison with peer institutions

Comparison with Peer Institutions

Overview: We gathered information on the shared resources landscape and efforts to reform it from large public research universities, as the most relevant peers to the UW. We spoke to individuals from the University of Wisconsin and the University of Minnesota and assessed documentation from Vanderbilt University and Northwestern University. We also gathered comparison data from numerous additional universities to benchmark support levels for shared

resources. Specific points of comparison are highlighted below. The most salient **general themes** that emerged from these conversations were:

- Peer institutions with effective shared resources had **dedicated shared facilities coordinators and/or committees** tasked with aligning efforts of shared resources, identifying funding shortfalls, and distributing funding to address them.
- Peer institutions agreed that **charge-back systems were not sufficient to support technically intensive shared resources** while maintaining reasonable costs/rates for academic users and therefore provided central funding to their shared facilities. In our comparisons, **UW often ranked far below peers in the level of central funding provided to shared resources.**
- Peer institutions set up **unified systems for staffing, administration, billing, scheduling, compliance and user outreach** that were shared across facilities, increasing efficiency providing a consistent experience to facility users.

<u>Specific Lessons from Benchmarking</u>

Centralization vs. Decentralization:

- Full centralization (e.g., Vanderbilt) enables operational consistency and growth but may reduce departmental autonomy. This model is unlikely to be workable at a larger public university such as UW.
- Hybrid models (e.g., Northwestern, Michigan) balance central oversight with localized management. Notably, even this "decentralized" model provides substantially more central oversight and coordination than currently in place at UW. An approach to this would be to have a Shared Facilities Coordination (SFCU) unit that coordinates with shared facilities management to develop and support strategies for operations. Due to the sheer number of specialized facilities, more than one SFCU unit would be needed.

Funding Strategies:

- Direct central subsidies (Minnesota, Wisconsin) ensure predictable support but require strong, long-term institutional commitment. Examples are: Institutional subsidies lowering usage fees for internal researchers, especially for pilot projects or junior faculty; Seed grants encouraging faculty to use shared facilities for innovative research; Grant proposal support such as providing letters of support and cost estimates to integrate facility usage in grant applications, thus enhancing funding opportunities.
- Usage-based models (Northwestern) promote organic growth and align funding with demand.

Strategic Planning:

- Agreements and frameworks must ensure continuity across leadership changes (Michigan, Wisconsin). This focuses on funding schemes, research needs and the evolving institutional needs.
- Incentivizing shared resources reduces duplication and fosters collaboration (Minnesota, Wisconsin). For example: faculty with similar needs can coordinate

and take advantage of already existing shared facilities/infrastructures rather than trying to operate individual labs. When offer packages are sent to new faculty needing special facilities, provisions and plans are made in advance for proper shared laboratory space and equipment availability.

Operational Models:

- Integrating equipment into core facilities maximizes efficiency (Minnesota). Avoid duplication of key and shareable equipment by planning in advance.
- Clear communication and accessible information on resources drive effective utilization (Wisconsin).

Recommendations for UW:

- Evaluate the benefits of a centralized coordination office, particularly for shared high-cost facilities. While central oversight of all shared resources is likely unfeasible, grouping facilities like-with-like under coordinating committees would make sense (e.g. many SOM resources could be jointly coordinated.)
- Formalize agreements with leadership to safeguard continuity in funding and operational priorities.
- Consider faculty startup packages that incentivize core usage and shared equipment investment.
- Establish a central resource directory and advisory committee to improve communication and reduce redundancies.

Comparison of UW funding rates to those of our peers:

Data provided by Xiao Zhu on central funding received by research computing units at peer institutions show that the UW central funding is the lowest at 20-25% compared to others which range from 50% to >95% (depending on user fee support or not). Even between those institutions that charge user fees (like the UW), the UW is still the lowest. The table with the data can be found in Attachment C. Note that these are estimates.

Data provided by Tong Sun (Table in Attachment C) concerning institutional support as total grant ratios of several CTSA hubs in the nation, show the UW among the lowest at 15%.

A very useful paper (can be found here: https://drive.google.com/drive/folders/19IIL9T5FDYLQvLRUhgk1Nh8XDEUhrsD_) published in the Journal of the IEST, V. 55, No. 1, in 2012 and titled: Financial and Operational Survey of 12 Major University Nanofabrication facilities: a Benchmarking study authored by Dennis Grimard and Lisa Jones from the University of Michigan, focuses on their financial and operational characteristics. Even though the study is almost 13 years old it is still pertinent in its conclusions. One key takeaway is that even though labs are similar in operations and finances they are significantly different in how they approach addressing the needs of their users.
It is very difficult to make direct comparisons but based on data from our cleanroom facility, the WNF, we are amongst the lowest, centrally funded shared facilities at least within NNCI.

Specifically, WNF central funding rate is currently around 10% whereas a very similar facility at the University of Michigan (Lurie Nanofabrication Facility, LNF) is at 50%. Northwestern funds their shared facilities at a level of 15-20% as a comparison (data obtained from recent discussions with contacts at each institution).

While precise funding models for UW shared facilities vary, our findings strongly suggest that **UW shared facilities receive far less central funding than those of peer institutions with strong shared facilities infrastructure.** We suggest that this significantly hampers the ability of UW shared facilities to provide modern services and equipment and competitive rates for users.

D. Short- and Long-Term Goals

Detailed short term goals (1-3 years), in rough order of suggested implementation:

1. Catalog and coordinate UW Shared Resources
    - Central Resource Directory: Develop an online directory detailing all shared facilities, their capabilities, and access protocols. This directory should be user-searchable for services, include basic information on cost structures, and ideally include online tools to book services. A visually and functionally cohesive system spanning resources with shared themes would be optimal; currently each facility has its own web presence with distinct layouts, booking systems, contact points etc.
    - Group resources with shared user bases, needs and/or technology together under committees or other leadership entities (such as dedicated shared facility coordination units) to foster communication and sharing of resources and best practices. Work with core directors to identify the potential for sharing of resources, systems and personnel to reduce redundancy and provide more consistent user experiences. For example, shared booking and billing systems, and shared IT or administrative support may be helpful to smaller shared facilities where developing these procedures or hiring dedicated personnel for their own facility is unfeasible. Eventually provide funds to these entities to disburse for major equipment purchases.

2. Streamline Administrative Workflows
    - Optimize Workday Processes: Collaborate with administrative teams to simplify workflows for billing, procurement, and reporting (separate report as attachment D).
    - Centralized Scheduling Software: Implement shared scheduling tools (e.g. CORAL, which is already in place for several facilities), that integrate all facilities into a single, user-friendly interface. There are other options available either open source (NIST NEMO), or commercially available (LIMS, GRAVL, Idea Elan Infinity) (mostly for SoM related facilities)).

- Transparent Policies: Clearly communicate policies for billing, equipment use, and training to users based on facility type and user base.

3. Address Staffing Challenges
    - Increase Salaries: Perform a salary benchmarking study pertinent to specific staff roles and responsibilities to align compensation with market rates and peer institutions including comparisons from areas of similar cost of living as well as industry trends for certain specialties.
    - Have clear and effective business processes for staff salary adjustments (in-grade or otherwise) and promotions that are timely and based on input from the appropriate sources.
    - Formalize Career Pathways, specific for core facilities that provide services as opposed to pure research.
    - Develop clear advancement tracks (e.g., junior, mid-level, and senior technical roles) to improve retention and morale.
    - Streamline Hiring Processes: Collaborate with HR to reduce delays in hiring skilled technical staff.
    - Professional Development: Provide funding and opportunities for staff training, certifications, and conference participation to enhance expertise and job satisfaction.

4. Upgrade or Replace Critical Equipment
    - Prioritize High-Demand Tools: Identify tools with the highest user demand or frequent breakdowns and replace or repair them. Compare usage and needs across cores with overlapping user bases to create prioritized plans for replacement of key equipment from different cores over multiple years.
    - Maintenance Contracts: Secure long-term maintenance agreements with equipment vendors to reduce downtime.
    - Expand Equipment Sharing: Facilitate inter-facility equipment sharing to maximize utilization of existing resources.

5. Expand Central Funding
    - Increase Direct Support: Advocate for increased budget allocations from central administration to offset operational costs. Provide coordinating entities (#1 above) with budgets and empower them to identify and prioritize needs for fund allocation and create cross-cutting multi-year upgrade plans across cores with overlapping user bases.
    - Encourage coordination with UW Advancement for philanthropic support of major needs. Consider lobbying efforts to extract state support for select technology platforms.
    - Bridge Funding Programs: Establish short-term funding mechanisms for facilities experiencing financial shortfalls. These can be coordinated by oversight entities.

- Subsidize User Fees: Use central funds to lower costs for users, particularly new users or external collaborators. Recognize that cores are most cost-effective when working near maximum user capacity.
- Provide direct support for the conception and writing of instrumentation grants. A dedicated grant writer, not merely pre-award submission support provided by ABC Shared Services, should be provided, allowing submission of competitive grants in collaboration with core directors and staff.

Detailed Long-Term Goals (3–10 Years)

1. Develop a State-Wide Infrastructure Plan
    - Collaborate with WA Institutions: Extend partnerships to create a shared resource network that leverages complementary strengths and can funnel more funding for key research areas. Model efforts based on the WA ecosystem (examples of successful campaigns in AZ, NY or TX but based on mega fabs).
    - Secure State and Federal Grants: Pursue CHIPS Act funding or other federal initiatives to support large-scale investments in research infrastructure. Successful examples are AI, Quantum and UPWARDS.

2. Expand and Renovate Facilities
    - Space Planning: Conduct a comprehensive assessment of current space usage and future needs to prioritize expansion or renovation projects. Investigate potential efficiency gains by co-locating specialized facilities that offer complementary resources. Coordinating oversight entities will be essential to this process.
    - Energy-Efficient Upgrades: Incorporate sustainable building practices in renovations to reduce operational costs.
    - Flexible Spaces: Design new labs and facilities to accommodate evolving research needs and interdisciplinary collaboration.
    - Work with UW Facilities Department to improve and streamline their processes to address project timelines, costs and the ability to work with approved outside vendors for projects that are beyond their capabilities in a timely manner.

3. Establish Sustainable Funding Mechanisms
    - Endowments: Work with development offices to establish endowed funds specifically for facility operations and equipment upgrades.
    - Industry Partnerships: Further strengthen ties with local industries, offering access to shared facilities in exchange for financial support or joint research funding while balancing academic needs and priorities.
    - External User Growth: Increase outreach to private companies and non-academic users to grow external revenue streams.

4. Implement Modern Facility Management Systems

- Integrated Software Platforms: Adopt coordinated software solutions for billing, scheduling, equipment tracking, and compliance management.
- Data Analytics: Use analytics and annual benchmarking by oversight entities to monitor facility usage, identify underutilized resources, and optimize operations.
- User Access Models: Develop tiered access levels and training requirements for users (e.g., occasional, frequent, external) with clear pricing and support structures.

5. Build a Skilled and Resilient Workforce
    - Career Longevity Programs: Introduce sabbaticals, tuition reimbursement, and other benefits to retain staff.
    - Talent Initiatives: Create internships and training programs to attract talent into technical and managerial roles. This can be further enhanced through staff exchanges to diversify experience.
    - Leadership Development: Offer management training to prepare senior staff for leadership positions within the facility ecosystem.

6. Expand Research Capabilities
    - Acquire Cutting-Edge Tools: Focus on technologies critical to emerging fields such as quantum computing, advanced materials, and bioengineering.
    - Interdisciplinary Hubs: Develop thematic research hubs (e.g., clean energy, AI, biotechnology) that integrate shared facilities with academic research priorities.
    - Global Collaboration: Position shared facilities as international hubs for collaboration, attracting global researchers and funding.

Suggested Outcome Metrics for Success

Short Term:

Assess user satisfaction in annual surveys and show improvement year by year.
Reduced staff turnover and increased average staff tenure showing improvement year by year.
Demonstrate increased utilization of underused equipment by attracting new users.

Long Term:

Increase external revenue contributions to shared facilities based on most critical needs.
Create a strategy to replace or upgrade aging equipment. This will vary depending on the type of facility but can be addressed if a structured grouping of shared facilities can be implemented.
Secure significant state or federal funding specifically targeted for infrastructure development.
Achieve top rankings among peer institutions for shared research resources.

By addressing these goals with a strategic and phased approach, the UW can ensure that shared facilities remain a cornerstone of research excellence and innovation.

Attachments

A. Members of the Shared Facilities Task Force:

Co-Chairs:
Maria Huffman, Director, Washington Nanofabrication Facility
Andrew Oberst, Professor & Associate Chair, Immunology

Members:
Lara Gamble, Research Assoc. Professor, Bioengineering; Director, Molecular Analysis Facility
David Ginger, Professor, Chemistry; Chief Scientist, Clean Energy Institute
Justin Kollman, Professor & Interim Chair, Biochemistry
Thane Mittelstaedt, Director, Cell Analysis Facility
Nathaniel Peters, Manager, W.M. Keck Microscopy Center
Andy Schauer, Manager, IsoLab
Tong Sun, Assistant Dean, Translational Health Sciences; Executive Director, ITHS
Xiao Zhu, Associate Vice President for Research Computing, UW-IT

B. Links to all responses:

a. Shared Facilities Management/staff survey: https://forms.office.com/Pages/DesignPageV2.aspx?subpage=design&id=W9229i_wGkSZoBYqxQYL0rfCvbo1S5pMmgPh9Xj21UVUOThKWFVFNUxDS0oxVVQzVUtaRlpGQUk1RC4u&analysis=true

b. Shared Facilities users survey: https://forms.office.com/pages/designpagev2.aspx?analysis=true&origin=EmailNotification&subpage=design&id=W9229i_wGkSZoBYqxQYL0rfCvbo1S5pMmgPh9Xj21UVUQkxUNkdCTDlSVFM4MEM1RlhKWkxOSlEzNS4u&tab=0

C. **Benchmarking from various institutions:**

Northwestern

https://facilities.research.northwestern.edu/test/
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University of Minnesota

Dr. Mark Sanders,
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Other institutions as an example: Vanderbilt: https://www.vumc.org/oor/node/59

More general information and papers at:
https://drive.google.com/drive/folders/19IIL9T5FDYLQvLRUhgk1Nh8XDEUhrsD_

Information on peer Institutions from Xiao Zhu:

NOTE: The percentage of the overall budget is an estimate based on Xiao's discussions with other directors. Hardware procurement has been included in the total budget, though it is worth noting that some institutions may pass part or all the cost directly or indirectly onto the researchers.

Central funding received by research computing units at peer institutions

Institution	Central funding	Est. % of total budget	User fee	Notes
Michigan State	4M	~60-70%	yes	
Purdue	5.5M	~60%	yes	
Indiana	10-12M	>95%	no	
Minnesota	10-12M	>95%	no	
Texas A&M	3M	~50%	yes	

UT-Austin (Texas Advanced Computing Center (TACC))	3M	<5%	yes	TACC might be an outlier, and it is largely funded by NSF (>$50M/year) and the State of Texas to support beyond their own campus
Washington	1M	20-25%	yes	e-Science Institute also receives $1M centrally to support data science

<u>Information on peer institutions provided by Tong Sun:</u>

Total grant ratios of several CTSA hubs in the nation:

Name	Primary Institution	Inst. Support:grant support ratio	Source
South Carolina Clinical & Translational Research Institute (SCTR)	Medical University of South Carolina	150%	CTSA PI
New Jersey Alliance for Clinical Translational Science: NJ ACTS	Rutgers University	100%	CTSA PI
Oregon Clinical and Translational Research Institute	Oregon Health and Science University	55%	CTSA program leader
Yale Clinical and Translational Science Award	Yale University	92%	CTSA administrator
The North Carolina Translational and Clinical Sciences	University of North Carolina Chapel Hill	30%	UNC Office of Research Development

Institute (TraCS)			
Institute of Translational Health Sciences	University of Washington	15%	Real data, including all schools support

D: Workday report (From November 14, 2024):

Summary of experiences and suggestions for WORKDAY.

The following summary has been drawn from input collected from the survey on Shared Facilities at the UW as well as from several frequent users of the system within COE.

Interface Design and Navigation

Current Issues: Workday's interface is unintuitive, burying critical actions like requisitions, POs, and invoices across multiple pages. Limited shortcuts hinder efficiency, and the lack of visibility into PO approval pipelines restricts proactive planning.
Proposed Solutions:

- Streamline navigation with centralized views and menu structures.
- Allow customized shortcuts and user-specific settings.
- Provide visibility into the approval pipeline for POs, enabling effective follow-up and planning.

Expected Impact: Improved navigation and transparency will drive operational efficiency, enabling faster and more coordinated actions across units.

Revenue Allocation into Program Income Grants

Current Issue: New rules prohibit ISD revenue transfers into Program Income grants, despite these grants' design to accept such income. Using Accounting Journal (AJ) entries as a workaround permits excessive flexibility, increasing the risk of misallocation.
Proposed Solution:
Reinstate ISD compatibility for Program Income grants or create a controlled pathway for revenue allocation.
Expected Impact: This change would reduce complexity while upholding financial accountability, ensuring alignment with institutional financial integrity.

Catalog and Supplier Integration

Current Issues: Many critical suppliers are missing from Workday's catalog, creating order delays. Non-catalog workarounds are challenging, and extended payment delays for high-cost scientific instruments (up to 9 months) have strained supplier relationships.
Proposed Solutions:

- Prioritize integrating key suppliers into Workday's catalog.
- Improve communication about catalog updates.
- Streamline payment processing for high-value equipment to prevent delays.

Expected Impact: Faster ordering, improved supplier relations, and reduced administrative time dedicated to supplier follow-up.

Inability to Post Negative (Credit) ISDs for Corrections

Current Issue: Workday restricts negative ISDs, making it impossible to retract or adjust entries without AJ entries. This restriction increases financial risk, as AJs allow for broad, unchecked adjustments.
Proposed Solution:
Introduce a "confirmation" flag to permit accountable negative ISDs for corrections.
Expected Impact: This would improve error correction without compromising financial integrity, enhancing control over adjustments while minimizing risks.

Lack of Programmatic Customer Entry and Invoice Posting

Current Issue: External Customer (CST) entries and invoices require manual intervention, slowing down workflows and limiting operational efficiency.
Proposed Solution:
Enable programmatic creation of CST entries and invoice posting through SWIFT to allow automated processes.
Expected Impact: This would streamline financial operations and reduce administrative overhead, enhancing the institution's operational efficiency.

Purchasing and Approval Efficiency

Current Issues: Support response times are slow, frequent rejections occur due to minor errors, and international orders face recurring issues requiring manual intervention.
Proposed Solutions:

- Establish a direct support line for real-time resolution.
- Automate and standardize international purchasing workflows.

Expected Impact: Improved transaction accuracy, fewer rejections, and faster time-to-purchase for users across departments.

Absence of Transaction Testing or Worktag Validation

Current Issue: Workday lacks a mechanism to test ISD or AJ entries for worktag validity prior to posting. Although SWIFT offers a "validate_worktags " endpoint, it doesn't cover Workday's custom validations, increasing error rates.
Proposed Solution:
Implement a "tentative post" flag or expand the "validate_worktags " endpoint to cover all custom conditions, allowing full validation.
Expected Impact: This would reduce transaction errors and rework, supporting more accurate financial operations and better resource utilization.

Expense Reporting and Reimbursement

Current Issues: Expense reporting has inconsistent guidance, leading to rejections. Split-bill tax-exempt purchases sometimes incur incorrect charges, and approval bottlenecks slow down reimbursements.

Proposed Solutions:

- Provide a streamlined checklist to ensure complete submissions.
- Rectify tax calculations for split-bills and allocate more resources for approval processes.

Expected Impact: Enhanced accuracy and processing speed for expense reports, reducing unnecessary costs and administrative time.

Documentation and Tracking Limitations

Current Issues: Inability to add attachments to closed POs forces external tracking. Supplier names lack standardization, causing order routing issues. Salary reporting is also challenging and labor-intensive.

Proposed Solutions:

- Enable post-closure attachments on POs and standardize supplier names.
- Simplify salary reporting to allow easy tracking and validation within Workday.

Expected Impact: Increased transparency, better tracking, and easier financial oversight across teams and projects.

Financial Reporting and Budget Oversight

Current Issues: The "Grant Manager Dashboard" does not accommodate income tracking for Program Income budgets. In addition, F&A calculations have been misconfigured for internal income, and cost centers lack clear reporting guidance.

Proposed Solutions:

- Expand the functionality of the Grant Manager Dashboard to cover income for Program Income budgets.
- Correct F&A calculations and provide standardized reporting guidance.

Expected Impact: Better budget tracking and oversight, improving financial control and alignment with operational revenue needs.

Invoice and Payment Processing

Current Issues: Vendor payments are delayed, especially with GHX-submitted invoices, resulting in strained relationships with suppliers, especially for large scientific instruments.

Proposed Solutions:

- Automate notifications for unpaid items and implement tracking for outstanding invoices.
- Ensure timely processing of high-value invoices to maintain supplier trust.

Expected Impact: Enhanced vendor relations and reduced manual tracking for departments, promoting a more reliable financial environment.

Accounts Receivable and Collections

Current Issues: Limited involvement from Shared Environment (SE) in accounts receivable burdens local units, and aging reports are ineffective, leading to difficulties in tracking overdue invoices.

Proposed Solutions:

Increase SE involvement in collections and improve aging reports for effective tracking and follow-up.

Expected Impact: Reduced departmental workload, improved collections, and strengthened financial control over outstanding balances.

Conclusion:

Workday's current functionality and user interface present substantial inefficiencies across financial reporting, procurement, and budgeting. The proposed solutions aim to streamline processes, ensure accurate and transparent budget management, and improve vendor and internal relations. By prioritizing these targeted solutions, Workday will align more closely with institutional goals of efficiency, accountability, and accuracy.

Maria Huffman (input from several COE staff who use Workday routinely plus comments from our survey)
November 14, 2024

E: Affiliations of Shared Facility users:

This listing includes various departments from UW Bothell, and from the Seattle campus, various departments within the SOM, CAS, COE, several other Colleges and a few corporate or outside users highlighted in yellow.

Applied Mathematics
CAS, Biology
School of Interdisciplinary Arts and Sciences at UW Bothell
UW Bothell STEM Biology
UW Bothell School of STEM
UW Bothell STEM Physical Sciences
Biology
IAS
Astronomy
Department of Medicine, division of gastroenterology
School of Interdisciplinary Arts & Sciences, UWB
Evans School of Public Policy & Governance
ITHS
ECE and Physics
Mechanical Engineering
Department of Physics
Physics and MSE
Chemical Engineering
Chemistry
Physics
ECE
Whitworth University Engineering and Physics Department
Washington Clean Energy Testbeds, Clean Energy Institute
Aerospace Engineering
Digital Biotechnologies, a startup with Adaptive Biotechnologies Corp
Earth and Space Sciences, College of the Environment
Bioengineering
Pharmaceutics
Materials Science and Engineering
Biology and Friday Harbor Laboratories
College of the Environment, School of Environmental and Forest Sciences

School of Marine and Environmental Affairs
Department of Bioengineering
CoE, CICOES, affiliate faculty in Oceanography
College of Engineering, Mechanical Engineering
Mechanical Engineering & Institute for Stem Cell and Regenerative Medicine (ISCRM)
CICOES
Third party user-anonymous
Oceanography
Hummingbird Scientific Engineer
(corporate)
Orthopaedic Surgery and Sports Medicine (SOM) and Mechanical Engineering (COE)
Dept of Immunology
Medicine
Cancer Vaccine Institute and Dept. of Obstetrics and Gynecology
Microbiology
School of Medicine, Department of Immunology
Psychiatry
Comparative medicine
Genome
sciences
School of Medicine, Department of Medicine
Department of Medicine, Division of Metabolism, Nutrition and Endocrinology
External User Company, Manager
Microbiology
Department of immunology
Seattle Children's Research Institute
Department of Pathology (Medicine)
Pharmacology
Research Division of OB/GYN Department
Dept of Laboratory Medicine and Pathology
Neurology
Psychiatry and behavioral Sciences
Laboratory Medicine and Pathology
A private company and a user of Washington Clean Energy Testbed (WCET)
Department of Dermatology
Nghiem Lab, Dermatology

Biochemistry department
School of Medicine/Division of Cardiology
ISB - UW Immunology
Laboratory Medicine and Pathology
Medical genetics, medicine
Pediatrics-Rheumatology
CERID, Department Medicine
ESS
Metabolism, Endocrinology and Nutrition-Dept of Medicine
Medical Genetics
Pharmaceutics
Division of Medical Genetics and joint appt. in Genome Sciences
Department of Ophthalmology, School of Medicine
Hematology and oncology in Medicine
Neurology, Memory and Brain Wellness Center, Alzheimer's Disease Research Center (ADRC)
Microbiology
Division of Gerontology and Geriatric Medicine, Department of Medicine
Medicine, Metabolism
Aquatic and Fishery Sciences
Cooperative Institute for Climate, Ocean, and Ecosystem Studies
Atmospheric and Climate Science
SoM Neurology
Metabolism, Endocrinology, Nutrition, Dept of Medicine
RJC Enterprises - Sponsored by EE department.
SEFS
Dept Medicine, Div. Medical genetics; School of Medicine
Department of Earth and Space Sciences, College of the Environment
CICOES