# EAB

# Striving for More Sustainable Core Facilities

Building a Strong Foundation of Shared Resources

University Research Forum

# Striving for More Sustainable Core Facilities

Five Steps for Building a Strong Foundation of Shared Resources

University Research Forum

# University Research Forum

**Caitlin Blair**
*Senior Analyst*

202-568-7417
cblair@eab.com

**Jon Barnhart**
*Consultant*

202-568-7475
jbarnhart@eab.com

**Ingrid Lund, PhD**
*Practice Manager*

## About EAB

EAB is a best practices firm that uses a combination of research, technology, and data-enabled services to improve the performance of more than 1,200 educational organizations. EAB forges and finds the best new ideas and proven practices from its network of thousands of leaders, then customizes and hardwires them into every level of member organizations, creating enduring value. For more information, visit eab.com.

## About the University Research Forum

The University Research Forum is the go-to resource for chief research officers. It offers real-time access to the latest strategic insights and implementation support on their biggest priorities, including both strategic initiatives like grand challenge efforts as well as operational initiatives, such as minimizing the administrative burden on faculty and overseeing research communications.

# Table of Contents

# Supporting Members in Best Practice Implementation

**Resources Available Within Your Membership**

This publication is only the beginning of our work to assist members in optimizing the research enterprise. Recognizing that ideas seldom speak for themselves, our ambition is to work actively with members of the University Research Forum to decide which practices are most relevant for your organization, to accelerate consensus among key constituencies, and to save implementation time.

We offer a variety of services to assist you with your mission. For additional information about any of the services detailed below, please contact your organization's relationship manager or visit our website at eab.com/urf. To order additional copies of this publication, please search for it by title on eab.com.

### On-Demand Webconference Sessions

Our website includes recordings of webconferences walking through our best practices research. Forum experts are also available to conduct private webconferences with your team.

### Facilitated Onsite Presentations

Our experts regularly visit campuses to lead half-day to day-long sessions focused on highlighting key insights for senior leaders or helping internal project teams select the most relevant practices and determine next steps.

### Unlimited Expert Troubleshooting

Members may contact the consultants who worked on any report to discuss the research, troubleshoot obstacles to implementation, or run deep on unique issues. Our staff conducts hundreds of telephone consultations every year.

To access the full range of services available to you, please visit our website at eab.com/urf

# Executive Summary

## Definition

**Core facilities** are defined by the National Institutes of Health (NIH) as "centralized shared research resources that provide access to instruments, technologies, services, as well as expert consultation and other services to scientific and clinical investigators. The typical core facility is a discrete unit within an institution and may have dedicated personnel, equipment, and space for operations. In general, core facilities recover their cost, or a portion of their cost, of providing service in the form of user fees that are charged to an investigator's funds, often to NIH or other federal grants…Core facilities may be fiscally supported by institutional funds, Federal funds, external revenue, other funding, or any combination of these."[1]

For the purposes of this whitepaper, a **central core facilities program** refers to a program run by the central research office that provides support, financial or otherwise, to a certain selected group of core facilities on campus.

## Key Observations

Core facilities are not new to campuses, but as budgets tighten, they are increasingly important as Chief Research Officers (CROs) look for cost-effective ways to provide researchers with access to the advanced technologies they need to advance their research.

The variety and structure of core facilities look different on each campus, and there is no one-size-fits-all model to sustain and grow them. However, there are many ways that CROs can provide targeted support to select cores by identifying and defining criteria for which cores align with the needs of faculty and the research enterprise.

Creating a central core facility program allows CROs to focus investments on facilities that best fit with their goals—whether that means growing research in a certain discipline or supporting cores that serve the largest user base. The services that a central program can provide, from financial to administrative to technological, can be adjusted to fit the available resources of the research office.

This publication advises CROs on how to establish a sustainable core facilities program. By creating a strong foundation, CROs can provide researchers with the technology they need to grow their work. With a strong foundation in place, CROs can then begin to focus on other areas, such as marketing to external users, providing internal incentives and vouchers, and establishing processes to monitor and sunset equipment.

---

1) National Institutes of Health, "What is a core facility?," *Frequently Asked Questions: Core Facilities*, https://grants.nih.gov/grants/policy/core_facilities_faqs.htm#3597.

# Introduction

## Focusing on Core Facilities

From flow cytometry to cleanrooms, the number and types of core facilities across campuses can vary widely. These facilities are critical to the research enterprise—spanning research disciplines and projects. As faculty acquire new equipment, core facilities grow organically in departments and colleges over time, often resulting in a large volume and variety of state-of-the art equipment across campus. However, most universities are not properly leveraging these important resources to maximize their potential value. As a result, they risk critical waste in unused capacity and potentially supporting redundant equipment.

### The Financial Burden of Cores on Institutions

Core facilities are not new to campuses, but they are gaining more attention from Chief Research Officers (CROs), particularly as federal funding of research stagnates. While core facilities can collect user fees, those fees are rarely enough to cover the full operating budget, thereby requiring a mix of external and internal funding sources to cover any gaps. In 2010, the NIH invested approximately $900 million in supporting core facilities.[2] Internally, departments, colleges, and universities are also providing heavy financial support.

Most core facilities rely on some level of internal financial subsidy to maintain their operations. In a survey of core administrators, nearly **80%** of respondents said their core was **partially subsidized** (recovering some costs from user fees), while less than 5% of respondents reported that their cores needed no subsidies (recovering all costs from user fees) and less than 10% said their core was fully subsidized (charging no user fees).[3] So while some cores may be self-sustaining, the reality is that most cores are not.

Core facilities rely on multiple funding sources to cover their operating budgets, with an average of just over 50% of income coming from user fees, which leaves core directors and institutions to fill in the gaps.[4]

**A Closer Look at Funding for Cores**[5]
*Average Percent of Income by Source*



- Other (2%)
- Grants for Core Support (to institution and to core) 16%
- Customer Revenue 52%
- Institutional Support 30%
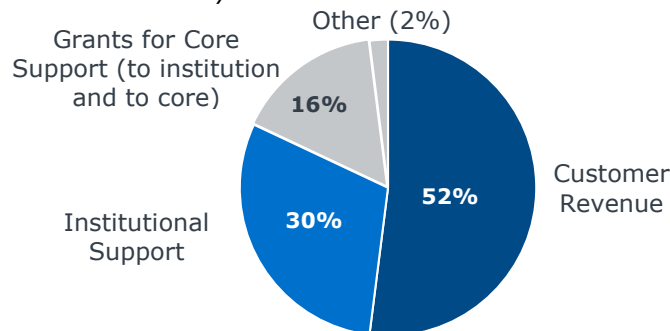
As universities increasingly have to stretch federal and institutional funds in more directions, creating a well-managed core facilities program can allow institutions to provide equipment to faculty across campus in a more strategic and cost-effective way.

2) Chang, Michael C. et al., "U.S. National Institutes of Health Core Consolidation–Investing in Greater Efficiency," *Journal of Biomolecular Techniques:* JBT, 26(1), 1–3, 2015, http://doi.org/10.7171/jbt.15-2601-003.
3) Hockberger, P. et al., *ABRF Core Administrators Network Survey: Developing a Database of Core Administrators,* https://abrf.org/sites/default/files/can_ccposter12rev4-cn-ph2.pdf.
4) iLabs Solutions, The 2016 Core Facility Benchmarking Study, https://www.agilent.com/cs/library/whitepaper/public/2016_Benchmarking_Study.pdf.
5) Ibid.

eab.com

## New Opportunities to Increase Core Efficiency

Universities are not the only institutions focusing on core facilities. As a funder, the NIH has begun to devote more attention to increasing core facility efficiency. Using funds from the 2009 American Recovery and Reinvestment Act (ARRA), the NIH provided grants to selected institutions to survey core facilities across campus and rewarded proposals for reducing equipment redundancy equipment and consolidating similar equipment where possible.[6]

Through the consolidation and centralization of some services, NIH grantees saw an average increase of 93% in services provided and 73% increase in number of users.[7] A majority of participants utilized the funds to centralize services around billing, purchasing, and service.[8] While not every institution can win special grant funding to undertake a large consolidation or centralization project, there are exportable lessons grantees can provide about the benefits of a comprehensive cores assessment and targeted improvement investments. For many, it is a longer term project to attain a return on investment (ROI), but even the initial steps of centralizing some services or consolidating select cores can be beneficial.

## Breaking Down the Problems with Cores

Maximizing the value of core facilities starts with a comprehensive understanding of existing facilities, as well as knowledge of current policies, practices, and usage of each facility.

## Discovering Cores on Campus Is Harder Than It Seems

Some core facilities might be widely publicized, but others might fall under the radar, sitting within a department where user awareness depends on word of mouth or proximity. With equipment accumulating across campus, the central research office often lacks a comprehensive list of all facilities across campus and does not have any easy way to create such a list.

If faculty do not know what equipment is available to them on campus, they risk purchasing new equipment that might be duplicative, or at least very similar, to an existing piece of equipment on campus. Faculty can purchase new equipment through grant funding that can initially help cover costs, but as the grant expires the financial burden of equipment maintenance often falls back on the institution. Lack of faculty awareness also risks unused capacity and missed opportunities to bring in valuable user fees.

If the research office does not know what exists across campus, staff and administrators may not be made aware of a core facility until it becomes a problem. Inconsistent processes and policies, like price setting, across campus can also lead to varying levels of service and sustainability.

---

6) Chang, Michael C. et al., "U.S. National Institutes of Health Core Consolidation–Investing in Greater Efficiency," *Journal of Biomolecular Techniques:* JBT, 26(1), 1–3, 2015, http://doi.org/10.7171/jbt.15-2601-003.

7) Ibid.

8) Ibid.

## Operating a Core Facility Is Like Running a Small Business

Managing a core facility requires specific scientific knowledge and expertise, but also entails administrative responsibilities like managing financials, customer service, and personnel. Dedicated staff with time, experience, and commitment to efficient maintenance of the core are critical. This workload can be too burdensome for faculty who lack the bandwidth to focus on the tasks that come with running a core facility, such as budgets, maintenance, and schedules.

In some cases, faculty might pass some responsibilities to their post-docs or graduate students, but this just shifts the burden to other time constrained personnel. In regards to both faculty and students, responsibility for the core takes away from valuable research time and leaves an expensive piece of equipment under the control of someone who lacks experience.

## Guidance for Increasing the Efficiency of Core Facilities

This publication offers high-level guidance to help leaders take the initial steps to make the most of core facilities on campus, from building an inventory of campus facilities to establishing central support services to cores. The first section details how to develop a process and infrastructure for understanding what facilities exists on campus and considering what investments to make. The second section looks at how institutions can provide support to core facilities, either through a central program or to all core facilities. Through the five steps outlined below, institutions can lay the foundation for building a portfolio of sustainable core facilities.

## Five Steps for Building a Strong Foundation of Shared Resources

**1.** **Convene a Core Facilities Committee**
Assemble a committee of stakeholders from across campus, set a clear objective, and communicate leadership support for the endeavor

**2.** **Define Core Facility on Campus**
Create a clear definition for core facilities on campus, and define other relevant terms as necessary

**3.** **Identify Existing Facilities on Campus**
Map existing core facilities and equipment on campus, and collect usage data to understand breadth and depth of user base

**4.** **Develop a Central Core Facilities Program**
Determine what support to provide, eligibility criteria, and a process for determining which cores receive support

**5.** **Consider Services to Support All Core Facilities**
Decide whether to provide any support services to "non-central" core facilities to improve the sustainability of all cores

Core facilities often grow organically—slowly, multiple pieces of equipment might come under the management of someone in a department. Sometimes this happens because department leadership creates a formal position. Other times, personnel adopt the role because no one else will. With facilities scattered across campus, the idea of creating a centralized support structure can seem daunting. But, creating a system to understand what facilities exist can help the research office target investment and support equipment that will benefit a wide range of faculty and students in the long run.

## 1. Convene a Core Facilities Committee

CROs can convene a committee of faculty and administrators to assist with the process and ensure transparency and stakeholder participation and investment. There are three key components to setting up a successful core facility committee: **1) bring together the right people, 2) define the mission and objectives, and 3) communicate leadership support.**

### Bring Together the Right People

A core facility committee should represent the diverse stakeholders who interact with cores, bringing together those who understand the complexity of managing the equipment and those who provide insight from across the campus.

This mix includes core facility directors who understand the technical aspects and required expertise, representatives from the college or department who provide insight into how cores fit into the larger research agenda and enterprise, and key faculty who utilize the equipment. In addition to considering the skillset of committee members, committees should also consider including members from a variety of colleges, departments, centers, the central research office, and university facilities managers.

### Define the Mission and Objectives

As with any committee, it is critical to determine the ultimate goals and deliverables of the committee early in the process. Campus leadership or the CRO should have a clear directive for the committee including questions to answer and a list of final resources to produce. The committee needs to clearly identify what problems it needs to address and lay out a process that will help provide answers.

For example, in late 2011, Harris Lewin, Vice Chancellor for Research at University of California, Davis, convened a committee to review core facilities on campus and make recommendations to improve the administration of cores. The committee's assignment included two clear parts.

First, the committee should survey research cores on campus, gathering information on each including details about the equipment itself and the recharge activities. This included answering specific questions like, "What scientific efforts does the core support, and are these efforts intrinsically linked to strategic campus priorities?" and "What is the user base for the core? How many users have taken advantage of the core over the past three years at what level of usage, and representing which colleges/school?"[9]

9) UC Davis Core Committee, UC Davis Research Facilities and Resources Committee Report, 2014, http://research.ucdavis.edu/wp-content/uploads/Core-Facility-Report-February-2014_final.pdf, 47-49.

9 eab.com

Second, the committee should make recommendations in specific areas, including the definitions and criteria for core facilities, as well as financial models and potential technology solutions to provide to cores.

Ultimately, the committee presented Dr. Lewin with a detailed report on the state of core facilities and comprehensive recommendations that led to the creation of the Research Core Facility Program (RCFP), which focused on growing research infrastructure through financial support and oversight of facilities.

## Communicate Leadership Support

Also critical to the success of a core facility committee is the authority to make change. A clear signal of leadership support, perhaps through a memo from the President/Provost or CRO (or a joint memo), can help define the committee's mission, educate the community about the process, and minimize barriers to the committee's work. This statement of support can also signal to faculty and the committee that the administration recognizes the important role core facilities can play in the research enterprise and are committed to providing faculty with the resources they need.

In a memorandum to the Core Research Facilities Workgroup, University of Minnesota (UMN) President Eric Kaler charged the group with reviewing facilities on the Twin Cities campus and making recommendations to improve their efficiency and impact. He included specific questions to be addressed in the committee's final report and provided a clear directive for their work.[10] Through this short memo, President Kaler communicated the priorities of this committee and his interest in ensuring that the university could continue to provide faculty and students with state-of-the-art research facilities. This show of support was critical in getting the work done and keeping committee members engaged throughout the process.[11]

## 2. Define Core Facility on Campus

CROs might offer a variety of answers when asked to define a core facility. Across campus, faculty and staff might give another definition, creating confusion as to what equipment a committee should focus on.

Before beginning an inventory process, CROs and other administrative leaders should clearly define what qualifies as a core facility for their institution. A clear definition is critical for identifying core facilities and ultimately deciding which core facilities are eligible for any type of central support. The NIH definition provides a good starting place, with adjustments for institution-specific variables such as number of users and revenue. It is critical that one term is consistently used and understood across campus.

Once institutions have a basic definition for a core facility, they can then define other related facilities on campus, like shared resources or recharge centers. Additionally, across campus there are likely existing core facilities that are utilized by a small number of researchers in one specific department. CROs might choose to create a separate definition for these. As detailed on the next page, Northwestern University utilized their definition of core facility to then define Department and University Core Facilities.

10) University of Minnesota Core Research Workgroup, Review of Core Research Infrastructure Workgroup Report, 1 June 2015, https://drive.google.com/file/d/0B4clNGOYSdMYUkNaMDQ0aDBxcG8/view?usp=sharing.
11) EAB interviews and analysis.

Creating a clear definition for core facility creates consistency across campus and can help ensure that a core committee focuses on only the relevant equipment.

<div style="border:1px solid #ccc; padding:1em; background:#e8e8e8;">

**Northwestern University**

### A Tiered Definition for Core Facilities

Northwestern University utilizes a campus-wide definition for core facilities that can then be broken down into three sub-categories.

They define core facilities generally as "'Recharge Centers' operating under a fee-for-service model, with the mission of enabling research at Northwestern."[12]

Three specific categories of core facilities are then more specifically defined under that the overarching category:

1. **Department** Core Facilities, which serve researchers in a single department and earn less than $30,000 in annual revenue.
2. **University** Core Facilities, which serve researchers in many departments and earn more than $30,000 in annual revenue.
3. **Clinical** Core Facilities, which serve those engaged in clinical research studies.

While each definition includes a revenue threshold, core facilities leadership at Northwestern can use their discretion in assigning each facility to a category.

</div>

## 3. Identify Existing Facilities on Campus

In contrast to defining a core facility, identifying all facilities on campus that fit the definition can be a time-consuming process. The research office often has varying levels of information on the existence of facilities on campus. And even with a knowledge of which facilities exist, CROs or a core committee will need valuable, but sometimes hard to collect, information. Specifically, the process entails creating a list of core facilities, then gathering relevant information, like number of users and services provided, that will be crucial to determining if the core is eligible for central support.

Beyond just gathering information on existing core facilities, CROs might seek to gather information on other equipment that might benefit users across campus. The most basic process for inventorying is a campus tour- conducting a room by room accounting. This can be a massive undertaking depending on the size of the campus. Besides dedicated manpower, this process requires a certain degree of active participation from faculty and college or department administrators. This inventory might be utilized to then create an easily accessible inventory of equipment, like the University of New Hampshire's Scientific Instrumentation Inventory (SII), a searchable database of instrumentation on campus.[13]

Other stakeholders across campus may be able to facilitate an alternative, data-driven approach to this process. For example, the finance or accounting office could release equipment "purchase records". This process will look different on each

---

12) Rosen, Aaron, "Core Facilities Administration," *Northwestern University Office of Research*, https://sites.northwestern.edu/orintegrity/files/2017/02/0217cores-2b5bbhp.pdf.
13) UNH Scientific Instrumentation Inventory (SII), https://www.unh.edu/research/scientific-instrumentation-inventory-sii

campus, given their structure, but CROs and core committees have the opportunity to utilize existing information as a starting point.

Some institutions may choose to combine the two approaches to gather the most comprehensive and accurate list. For example, as described below, the University of Minnesota – Twin Cities utilized institutional knowledge and data to determine which facilities on campus should be considered a core facility.

**M**
UNIVERSITY OF MINNESOTA

### A Two-Pronged Inventorying Approach

When the University of Minnesota – Twin Cities convened a core research infrastructure working group in 2015, they established "Top Down" and "Bottom Up" subgroups. In the inventorying process, each subgroup took a different approach to identifying which facilities on campus fit their definition of critical Core Research Infrastructure (CRI), existing core facilities that have a wide user-base and impact on campus.[14]

The "Top Down" subgroup utilized their institutional knowledge and reach across campus. They simply compiled a list of the facilities that they knew of that might be consider as CRI.

The "Bottom Up" subgroup took a data-driven approach, working with other stakeholders on campus. From the University Finance office they gathered information on Internal Sales Organizations to gain insight on the number of users for each core and the breadth of departments and colleges utilizing the services. A survey of the Council of Research Associate Deans provided an additional list of facilities. Lastly, they surveyed the UMN list of centers and institutes. They then reviewed and consolidated these three lists to create one final list of facilities to consider.

The two subgroups then combined their lists to create one complete list of facilities for the working group to focus in on. This data was not perfect, but it did allow the working group to identify facilities that best matched their criteria. Despite some gaps in data, overall this two-pronged approach allowed the committee to create a comprehensive list of facilities to consider

14) University of Minnesota Core Research Workgroup, *Review of Core Research Infrastructure Workgroup Report*, 1 June 2015, https://drive.google.com/file/d/0B4clNGOYSdMYUkNaMDQ0aDBxcG8/view?usp=sharing.

## 4. Develop a Central Core Facilities Program

Centrally supporting core facilities is an efficient way to provide faculty with access to a wide variety of equipment. But, core facilities can be expensive and central resources limited. By focusing resources on cores that best fit the institution's needs and goals, as well as making these cores available to a broader user base, the research office can maximize their investment without having to purchase new equipment.

Establishing a central core facilities program does not inherently mean denying support for other cores on campus, but rather allows for differentiation in the level of investment and management support provided by the central office.

### Create Criteria for a Central Core Facilities Program

Not all core facilities should qualify for central support and not all cores need central support. Within departments, certain cores with a limited user base might be serving their users well and not have a need for central support. Choosing specific eligibility criteria for support from a central core facilities program allows CROs to make strategic investments and focus resources on cores that can have the largest impact.

Some institutions adopt a more quantitative approach focusing on eligibility metrics such as like number of users, budgets, and operating income. Others might rely more heavily on qualitative criteria, prioritizing how the core fits in with the growth plan for the enterprise or accessibility to internal and external users. Still others might ultimately focus on cores that need support the most, such as those that are suffering financially but critical to research on campus. Regardless of what criteria an institution chooses to utilize, CROs should select those that align with their priorities and need.

Institutions can choose from a whole range of potential eligibility criteria. The menu of eligibility criteria on the following page combines criteria utilized by multiple institutions to present a comprehensive list of potential criteria to consider. The criteria can be utilized to create a threshold for eligibility. For example, a CRO that wants to provide support for cores that have a larger and diverse user base might include criteria about number of unique users and number of departments or colleges served. At UC Davis, to receive designation as a Campus Research Core Facility, cores must serve at least three or more colleges as well as an average of 70 individual faculty members.[15]

15) UC Davis, "Criteria for designation as Campus Research Core Facility," http://research.ucdavis.edu/research/core-facilities-services/uc-davis-core-facilities/#criteria.

**A Menu of Eligibility Criteria**

**Revenue**
- Total annual recharge fees
- Level of recharge fees from internal vs. external users
- Revenue from additional sources (grants, department subsidy, etc.)

**Budget**
- Expenses (operating, personnel)
- Annual budget

**User Base**
- Number of internal users
- Number of external users
- Number of departments represented by individual users

**Service Utilization**
- Number of unique services (or transactions) provided annually
- Amount of idle or unused time
- Number of departments represented by individual users

**Service Utilization**
- Alignment between technology and research goals (or university goals more broadly)
- Active involvement in research community

**Accessibility and Training**
- Demonstrates equitable access available to all users
- Necessary training is available to users

**Staffing and Management**
- Professional staff structure is in place
- Staff experts provide high quality service to users
- Transparent and accurate pricing structure in place

**Technology**
- Uniqueness of equipment (including level of local competition)
- Provides access to advanced technologies

## Determine What Central Support Services to Provide

CROs should review the different roles and responsibilities of a core administrator to gain a better understanding of what services might be beneficial to provide centrally. The most common job responsibilities, according to a survey of core facilities administrators, include budgeting, financial operations, "scientific oversight or operation", marketing, administrative work, and grant writing.[16] With this diverse set of responsibilities, there are many ways that the research office can provide support outside of just financial investment and subsidies.

Central support for cores facilities can span a wide spectrum - from simple financial investments to providing support for budgeting and financial activities to fully managing the facility. However, support often falls into four main categories: operations, compliance, services, and marketing. The next page provides an overview of how two institutions, Northwestern University and University of New Hampshire, provides resources in each of these categories. The University of New Hampshire provides centralized support and management to select cores through the University Instrumentation Center (UIC). Northwestern provides support and guidance to selected core facilities.

16) Hockberger, P. et al., *ABRF Core Administrators Network Survey: Developing a Database of Core Administrators*, https://abrf.org/sites/default/files/can_ccposter12rev4-cn-ph2.pdf.

**Two Models of Central Core Facilities Programs**

```
┌─────────────────────────────────────────┐
│     Central Core Facilities Program      │
└─────────────────────────────────────────┘
         │                       │
┌──────────────────┐    ┌──────────────────────┐
│ Providing Central│    │ Creating a Centrally  │
│ Support for Cores│    │ Managed University-wide│
│                  │    │ Core Facility          │
└──────────────────┘    └──────────────────────┘
```
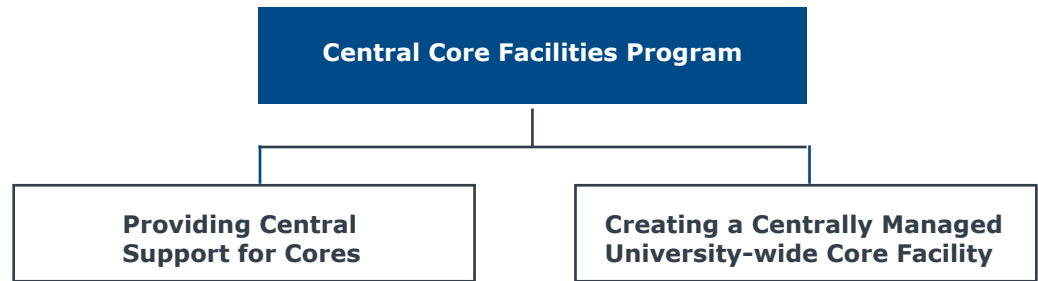
## Northwestern

The Office of Research provides support to core facilities that are housed within departments across campus:[17]

- *Operations:* approximately $2M per year in financial support for operations, equipment, and professional development

- *Compliance*: Central oversight of finances, policies and regulations, annual review and performance evaluation

- *Services*: NUcore software platform for scheduling, billing and reporting of core services; IT support

- *Marketing*: a core facilities webpage with information and search engine for managers, users, and stakeholders; brochures and videos targeting internal and external users

## University of New Hampshire

The University Instrumentation Center (UIC) is a "University-wide core facility dedicated to the advancement of the research and academic missions of UNH and the surrounding research community."[18]

The UIC has a staff of six which includes a director, two engineers, and three scientists to operate and maintain key equipment and provide trainings.

UNH UIC provides the following support services:

- *Operations:* UIC is partially subsidized by the central research office but also recovers costs through usage fees and engineering service fees

- *Compliance:* UIC director oversees the financials of each core, tracking metrics, setting pricing, facilitating billing, and maintenance

- *Services:* reservation software (Idea Elan) for instrumentation, maintenance of a database of instrumentation on campus (Scientific Instrumentation Inventory (SII))

- *Marketing:* publicity through the UNH website and other venues; UIC Director conducts outreach to internal and external parties to increase usage

17) Rosen, Aaron. "Core Facilities Administration." Northwestern University Office of Research, https://sites.northwestern.edu/orintegrity/files/2017/02/0217cores-2b5bbhp.pdf; EAB Interview and analysis.
18) University of New Hampshire, "University Instrumentation Center," http://www.unh.edu/research/welcome-uic.; University of New Hampshire, "About the UIC," http://www.unh.edu/research/sites/www.unh.edu.research/files/docs/UIC/uic_generalbrochure_revised.pdf

## Select Cores to Receive Central Support

Establishing the eligibility criteria for a central core facilities program is the first step in narrowing down which equipment should be supported by a central program. Given that few offices have the resources to support all cores, CROs should create a clear process for selecting cores to receive central support.

Cores are most often identified to receive central support through:

- Committee recommendation
- An application process
- Selection by the CRO or research office
- A combination of the above

CROs might initially select an inaugural group of cores recommended by a committee, focusing resources on cores that most closely align with their criteria. The CRO might then opt for a similar process as they expand their portfolio of cores or they may issue a request for applications. An application process allows cores to be more self-selecting, while still allowing for executive discretion. As detailed below, the core facilities at the University of Alabama at Birmingham apply to the Institutional Core Facilities Program (ICFP).

### Institutional Core Facility Program Application

The University Alabama at Birmingham Institutional Core Facilities Program (ICFP) was created to support the development and operations of core facilities to serve the needs of investigators. [19]

In addition to meeting certain eligibility criteria related to accessibility, specific number of users, and demonstrated community engagement, each core seeking designation is required to submit an application.

The application includes four sections:

- A **summary** section in which applicants are asked to provide an overview of the core and the services currently offered, external sources of funding, "UAB-centric enrichment activities", and a list of funded users from the previous year.

- An **operating budget** detailing income (sources of internal and external support) and expenses, including a breakdown of personnel and operating expenses.

- An **overview of core personnel** including their percent effort and involvement in training and enrichment activities.

- A **funding request and justification,** including any potential changes in existing or future grant funding.

Applications for the ICFP are reviewed by an advisory panel that subsequently makes recommendations to the CRO.

---

19) University of Alabama at Birmingham, "Application for Support as a UAB Institutional Core Facility," http://www.uab.edu/research/administration/news/Pages/RFA-for-Institutional-Cores-Announced-161010.aspx.

## Funding Sources for Central Core Facilities Programs

Just as research offices are funded in various ways, the funding sources for a central core facilities program will vary by campus. Additionally, each campus has their own budget model and funding structure that will contribute to even greater variation.

Similar to many research offices, central support programs are often funded through shared costs between the research office, departments or colleges with users, and indirect cost recovery.

Determining the appropriate level of funding to budget for a central program will also vary widely by institution. To determine the potential level of investment required to run their cores program, UC Davis applied the benchmark of 30% institutional support for cores to the operating budget of cores in their portfolio.[20] By looking at the current combined budget of all cores, they have determined an aspirational funding number to work towards.

## 5. Consider Services to Support All Core Facilities

Basic support that increases the visibility of all cores can help grow the user base of both internal and external customers. More customers generate more user fees and hopefully decrease reliance on subsidies across campus.

### Publicize Core Facilities

Through the information collected during the inventory process, the research office can play an instrumental role in publicizing the facilities to broader campus. The research office can make varying levels of investment – from a collection of links to specific core's webpages to a searchable database – but all can help make it easier for users to access information about facilities available on campus.

Many cores have a website, often through their home department, that includes basic information on the equipment, pricing, and logistics such as scheduling. At the same time, each research office almost always has its own website that highlights the work of the research enterprise and shares relevant information to help faculty and students perform their work. But, too often the main research website does not include a section that easily connects users with equipment on campus. An easy and inexpensive first step for increasing awareness of core facilities is to create a "Core Facilities" page on the main research website – this can be as simple as a compiled list of individual links to the individual core sites. At the very least, this allows users to see what cores are available and seek out more information on their own.

Taking this one step further, the main research website could include a core facilities webpage that compiles and displays some of the most relevant information upfront. Creating a page that details basic information about location, point of contact, pricing, and departmental webpage for each core provides users with even more accessible information. An easy way to help users, both internal and external, search for equipment is through a searchable database or listing of cores.

In addition to a well curated website, research offices employ a variety of additional tactics to increase awareness of facilities. Printed materials like a brochure of cores or a newsletter can help provide basic information. In person events like a cores facilities fair or showcase, new faculty orientation or a speaker series can help reach a wide audience of potential users.

---

20) UC Davis Core Committee, *UC Davis Research Facilities and Resources Committee Report*, 2014, http://research.ucdavis.edu/wp-content/uploads/Core-Facility-Report-February-2014_final.pdf, 11

## Tool: Assessing the Visibility of Your Core Facilities

Research offices can help publicize core facilities through existing resources. This tool will help research offices assess the current level of core visibility and inform additional steps to boost visibility.

Assess your institutions on these six questions and address any "No" answers.

| Connecting Users with Your Core Facilities | | Yes/No |
|---|---|---|
| **Navigation** | **1. First Result in Google Search**<br>Start at www.google.com. Search "[Institution's full name] core facilities." Is your main Research Office website the first result? | |
| | **2. Visible Link on Research Home Page**<br>Navigate to your Research Office homepage. Is there a visible "Core Facilities" link on the main menu or within one-click of the main tab (Ex. listed under a tab of Resources for Researchers)? Make sure viewers can get from the Research Office homepage to information on core facilities in one click. | |
| | **3. Matching Google and Homepage Links**<br>Does the link on your institutional homepage lead to the same research site that the first Google result did? | |
| **Navigation** | **4. Connecting Users with Core Facilities**<br>Is contact information and location provided for each core facility? | |
| | **5. Sharing Relevant Information for Users**<br>Is pertinent information like pricing, training, equipment, and scheduling available for each core facility? | |
| | **6. Providing Core Facilities a Contact on Campus**<br>Does the core facilities page include information or a main contact in the research office for core directors on campus to update information or connect with about resources? | |

## Provide Additional Services to All Cores

Increasing publicity is just one way that the research office can provide support for all core facilities. Understanding that research offices have varying levels of resources to dedicate to core facilities, surveying core facility directors and users across campus can provide insight into the central services that faculty need most.

Since scientists running each core are the technical experts, the central office can often provide the most beneficial support in the more business-minded pieces. This support could vary from providing management and financial guidance to developing or purchasing a software platform that can help with processes like scheduling and billing.

Northwestern University created an electronic system that all core facilities can use at no cost to aid in billing and payments. This system not only allows for customers to easily find equipment they need and schedule usage, but also reduces some of the administrative burden that falls on core facility directors.

Northwestern's NUcore system provides core directors and users with an easy way to track and pay for core facilities services. NUcore was developed through the partnership of the Feinberg School of Medicine (FSM) Research Office, the Northwestern University Office for Research (NU OR), and the Robert H. Lurie Comprehensive Cancer Center (RHLCCC).[21] NUcore is open source software developed specifically to meets the needs of Northwestern University's core facilities.

NUcore benefits both users and core directors. Users can easily request and schedule services, check on the status of their order, and make payments for service. With an electronic system in place, core directors can track their financials and easily pull up-to-date reports.

On the NUcore website, users can easily see a list of all core facilities available and access all the information they need to utilize the equipment of the core facility.

Northwestern was able to invest in creating their own platform, but other institutions might opt to utilize an existing platform that matches with their needs and budget.

21) Northwestern University Feinberg School of Medicine, "What is NUcore?," http://www.feinberg.northwestern.edu/research/cores/NUcore/index.html.; Northwestern University, "NUcore: Facilities," https://nucore.northwestern.edu/facilities.; Northwestern University, "About NUcore," http://sites.northwestern.edu/nucore/.

# Conclusion

Creating a central core facilities program allows CROs to focus investments on facilities that best fit with their goals—whether that means growing research in a certain discipline or supporting cores that serve the largest user base. By understanding, supporting, and promoting existing facilities on campus, CROs can connect researchers with existing resources and technologies.

With a strong foundation in place, CROs can then begin to focus on other areas, such as marketing to external users, providing internal incentives and vouchers, and establishing processes to monitor and sunset equipment.

**Interested in learning more or questions on additional topics to explore related to core facilities?** Contact Caitlin Blair (cblair@eab.com) or Jon Barnhart (jbarnhart@eab.com).

# Advisors to Our Work

The University Research Forum is grateful to the individuals and organizations that shared their insights, analysis, and time with us. We would especially like to recognize the following individuals for being particularly generous with their time and expertise.

**Tanju Karanfil**
Clemson University
Clemson, SC

**Henry Artigues**
Florida International University
Miami, FL

**Chris Jones**
Georgia Institute of Technology
Atlanta, GA

**Monique Tavares**
Georgia Institute of Technology
Atlanta, GA

**Alan Snyder**
Lehigh University
Bethlehem, PA

**Philip Hockberger**
Northwestern University
Evanston, IL

**Kent Keyser**
The University of Alabama at Birmingham
Birmingham, AL

**Julie Auger**
University of California, Davis
Davis, CA

**Philip H. Taylor**
University of Cincinnati
Cincinnati, OH

**Vassilis L. Syrmos**
University of Hawai'i
Honolulu, HI

**Claudia Neuhauser**
University of Minnesota, Twin Cities
Minneapolis, MN

**Shawn Banker**
University of New Hampshire
Durham, NH

# Additional Resources

Chang, Michael C. et al., "U.S. National Institutes of Health Core Consolidation–Investing in Greater Efficiency," *Journal of Biomolecular Techniques : JBT*, *26*(1), 1–3, 2015, http://doi.org/10.7171/jbt.15-2601-003.

Hockberger, P. et al., *ABRF Core Administrators Network Survey: Developing a Database of Core Administrators,* https://abrf.org/sites/default/files/can_ccposter12rev4-cn-ph2.pdf.

iLabs Solutions, *The 2016 Core Facility Benchmarking Study,* 22 September 2016, https://www.agilent.com/cs/library/whitepaper/public/2016_Benchmarking_Study.pdf.

National Institutes of Health, "What is a core facility*?," Frequently Asked Questions: Core Facilities*, https://grants.nih.gov/grants/policy/core_facilities_faqs.htm#3597.

Turpen, Paula B. et al., "Metrics for Success: Strategies for Enabling Core Facility Performance and Assessing Outcomes," *Journal of Biomolecular Techniques : JBT*, *27*(1), 25–39. 2016. http://doi.org/10.7171/jbt.16-2701-001.

"Workshop Report," *NIH-ABRF: Workshop on Enhancing Efficiency of Research Core Facilities*, 2015, https://dpcpsi.nih.gov/sites/default/files/NIH-ABRF%20Workshop%20Report_Complete_06-22-15.pdf.

**Institution Resources**

University of Alabama at Birmingham, "Application for Support as a UAB Institutional Core Facility," http://www.uab.edu/research/administration/news/Pages/RFA-for-Institutional-Cores-Announced-161010.aspx.

Rosen, Aaron, "Core Facilities Administration," *Northwestern University Office of Research,* https://sites.northwestern.edu/orintegrity/files/2017/02/0217cores-2b5bbhp.pdf.

UC Davis Core Committee, *UC Davis Research Facilities and Resources Committee Report,* 24 February 2014. http://research.ucdavis.edu/wp-content/uploads/Core-Facility-Report-February-2014_final.pdf.

UC Davis, "Criteria for designation as Campus Research Core Facility," http://research.ucdavis.edu/research/core-facilities-services/uc-davis-core-facilities/#criteria.

UC Davis Office of Research, *Research Core Facilities Program: Year 1 Report 2015-16,* http://research.ucdavis.edu/wp-content/uploads/Core-Facility-Program-Report-10-26.pdf.

University of Minnesota Core Research Workgroup, *Review of Core Research Infrastructure Workgroup Report,* 1 June 2015, https://drive.google.com/file/d/0B4clNGOYSdMYUkNaMDQ0aDBxcG8/view?usp=sharing.

University of New Hampshire, "University Instrumentation Center," http://www.unh.edu/research/welcome-uic.

University of New Hampshire, "About the UIC," http://www.unh.edu/research/sites/www.unh.edu.research/files/docs/UIC/uic_generalbrochure_revised.pdf.

UNH Scientific Instrumentation Inventory (SII), https://www.unh.edu/research/scientific-instrumentation-inventory-sii.

Northwestern University Feinberg School of Medicine, "What is NUcore?," http://www.feinberg.northwestern.edu/research/cores/NUcore/index.html.

Northwestern University, "NUcore: Facilities," https://nucore.northwestern.edu/facilities.

Northwestern University, "About NUcore," http://sites.northwestern.edu/nucore/.

P 202.266.6400 | F 202.266.5700 | eab.com

EAB