

Defining Core Facilities: Lessons Learned in Sustainability

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**South Central Core Collective A Chapter of
the Association of Biomolecular Resource
Facilities**



TEXAS A&M UNIVERSITY
Division of Research

Texas A&M University

~50 Core Facilities operating across a landscape that includes:

- Texas A&M University.
- Texas A&M Engineering Experiment Station.
- Texas A&M AgriLife.
- Consolidation of three college (Liberal Arts, Geosciences, and Sciences) into the College of Arts and Sciences ~3 years ago.

Varied landscape in how core facilities are managed and supported.

Goals for Core Facilities

The Vice President for Research is committed to providing foundational research infrastructure and the research facilities required to enable excellence, innovation, and outstanding success in research, scholarship, and creative arts.

The goals of the Core Facilities Program are to provide state-of-the-art research infrastructure and expertise across the research enterprise of the Texas A&M University and associated agencies (AgriLife and TEES).

Undertaking a holistic review of core facilities to increase their sustainability.

Defining Core Facilities

- 1) Develop an operational definition of what a core facility is at Texas A&M University that can be used to organize core facilities into effective and financially sustainable management and support structure.
- 2) Defined the essential elements and desired objectives of the cores.
- 3) What are the different funding models available for the sustainable operation of core facilities based on the operational definition of what a core facility is at Texas A&M University (e.g. active verses passive subsidies)?
- 4) How do core facilities provide core services and remain on the cutting edge of their disciplines critical to innovation withing the research enterprise?

Tiered Organizational Model

Cores should be sorted based on the following criteria

- The breadth of who they are serving size
- Operating cost and revenue
- Where they are in their lifespans e.g. emergent to mature

Resulting in a tiered approach to administration and shared funding responsibilities.

Characteristics of Core Facilities by Level

	Unit	Breadth (#PIs, #Depts, #Colleges)	Staff # and Expertise	Budget \$\$ Revenue	Potential Subsidy Models	Rate study
Level 0	PI/Shared PIs	≥1 PI	NA	NA/MOU	PI	NA
Level 1	Dept	>1 PI, ≥1 Dept	≥1 Dedicated staff	>\$100k \$25K	Dept only	Yes
Level 2	Dept/College	>5PIs, >3 Depts, 1 College		>\$100k \$25K	MOU Shared Responsibility Dept/College	Yes
Level 3	College	>10 PIs, >5 Depts, ≥1 College	1 director, ≥ 1 additional professional staff	>\$200k \$50K	1/3 model: Core revenue, College contribution, Department	Yes
Level 4	VPR	>20 PIs, >10 Depts, >3 Colleges	1 director, ≥ 5 additional professional staff	>\$300k \$100K	1/3 model: Core revenue, DOR contribution, College	Yes

Enhancing Core Sustainability

- Shared responsibility spread across stakeholders.
- Promote industry/external revenue and collaborations.
- Enhance core revenue and performance.
- Teaching/training opportunities.
- Core consolidation and super cores.
- Shared Service Centers or reciprocal pricing agreements with regional partners.

Enhancing Performance

TEXAS A&M UNIVERSITY

3rd Annual
**CORE
FACILITIES**
COLLOQUIUM:
*Keep Yourself
Connected*

Discussions points

- Developing Business Plans for Core Facilities (2023)
- Conflict resolution for core facility operators (2024).
 - **Joint Open Houses to promote core facilities.**
 - Ideas for workshops.
 - Collective plans for increasing customer base.

8:30 AM	• Coffee and Pastries <small>Rudder Exhibit Hall</small>
9:00 AM	• Word of Welcome <small>Ashlyn Montgomery, Core Facilities Coordinator</small>
9:15 AM	• Core Facility Annual Report <small>Dr. Brendan Roark, Associate Vice President of Research for Core Facilities</small>
10:00 AM	• Rate Studies <small>Hayleigh Hendrix, Financial Management Services Hyle Maldonado, TEES Fiscal Office</small>
10:30 AM	• Strategies for Successful Conflict Resolution: You Can't Hide in Your Office and Hope the Problem Goes Away <small>Ann Marie Deslauriers-Cox, Assistant Manager Flow Cytometry Core University of Michigan</small>
12:00 PM	• Lunch and Vendor Show
1:00 PM	• Breakout Groups

Enhancing Performance

Piloting core facility project management software

eLabNext combination of ELN and LIMS for research with the full power of an open platform to achieve accelerated and reproducible research outcomes through optimized lab operations.

VPR is supporting the full cost initially and developing a pool of superusers to aid on onboarding and optimizing applications for future users.

Promoting third party service contract providers.

Developed a master list of all research equipment to help lower cost.

Texas A&M Institute for Preclinical Studies



The Human Imaging Facility (HIF) meets the Magnetic Resonance Imaging (MRI) needs of the research community using a Siemens 3T Prisma magnet. Provide comprehensive support for MRI projects, from changing and waiting rooms to equipment and space for pre- and post-scan assessment.

Translational Imaging Center's (TIC) advanced diagnostic imaging encompasses the most advanced imaging research technology available today including MRI 3T, Ultrasound, and X-Ray. Focused on animals.



Effective Financial Management

- Focused on closing the gap between revenue and operating cost □ subsidies.
- Performance based budgets – use metrics to measure impacts.
- Incorporate depreciation and long-term equipment replacement strategies.
- Marry the annual budget process with rate studies.

Understand the true and full cost of operating core facilities

Research Development Fund

2014 - TAMU, TEES, AgriLife and TAMHSC agreed that 15% of their respective IDC generated be used to "make strategic investments for the good of the Brazos County-based Texas A&M research enterprise".

RDF Classic Program

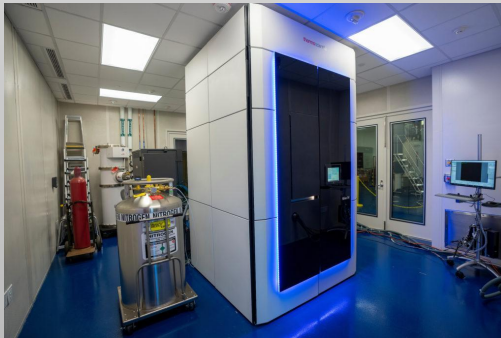
- a. create new, needed facilities through a proposal process;
- b. support existing, widely used core facilities; and
- c. provide matching funds for external infrastructure proposals requiring them (NSF MRI, etc.).

2018 Expand to include RDF Reoccurring Program

- 20% of the RDF funds, to support existing facilities in efforts to increase their user base, or otherwise increase their revenue. Support reoccurring cost such as service contract and portions of lab manager salaries.

Emergent Cores - RDF Successes

Core	Total Award
Microscopy & Imaging Center MIC	\$5,008,201
Aggie Fab Nanomanufacturing Facility	\$3,777,577
Soft Matter Facility	\$2,571,485
Integrated Metabolomics Analysis Core (IMAC)	\$1,905,161



Thank You!

Appendix

**Essential Components of a Core

- **~30 Essential Components of a core -- My top 5**
- Provides centralized access to a shared resource:
- Expertise:
 - Services/methods
 - Instrument upkeep
 - Analyzing data
 - State of the art methods
- Ability to stay current with most recent advancements
- Core assessment capability:
 - Operations, impact, return on investment
- Compliance with federal, system and university regulations for establishing rates

**Desired Objective of a Core

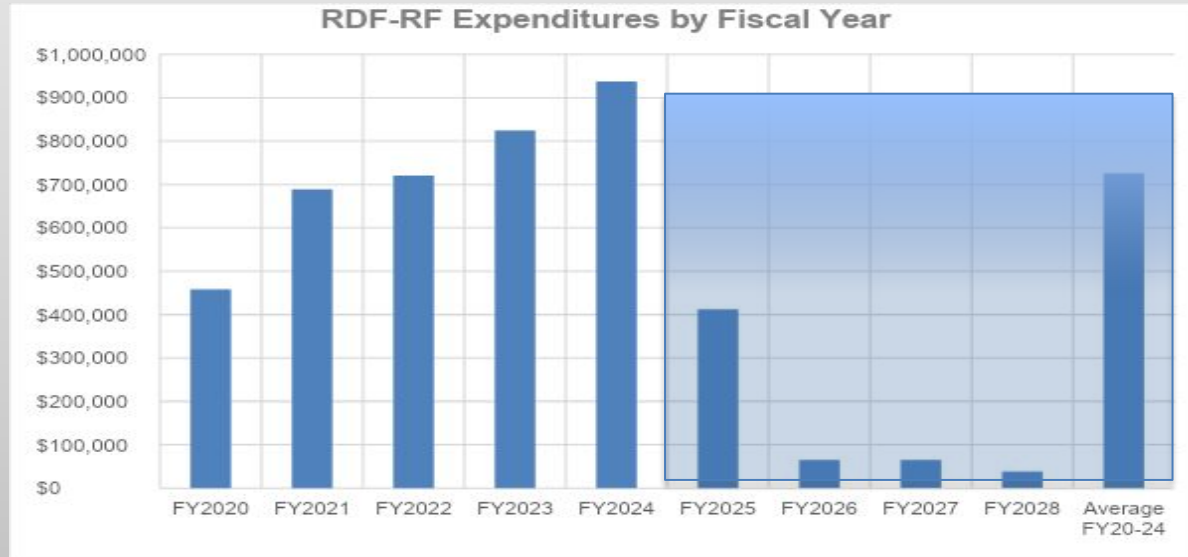
- **~15 Desired objective of a core – My top 5**
- Elevate the levels of research.
- Provide high quality data/product/service.
- Promote interdisciplinary research and collaborations
- Sound fiscal management with contributions toward sustainability
- Responsive to stakeholders

**RDF Classic Awards FY15-23



FY	Classic	Cost Share
2015	\$2,583,611	
2016	\$5,492,745	\$241,853
2017	\$3,245,850	\$46,146
2018	\$8,551,498	\$183,689
2019	\$4,955,789	
2020	\$3,057,853	
2021	\$8,602,177	\$1,324,286
2022	\$5,853,351	
2023	\$4,328,634	
Average	\$5,185,723	\$448,994

**RDF-RF Expenditures



Expect program will level off as with new tiered systems limits the cores eligible to apply for the program

South Central Core Collective: October 8-9, 2024

- TMC3 Helix Park \$75
- October 8th Pre-Meeting Business Skills Workshop for Core Facilities (look for scholarship opportunities)
- Evening Social
- Hotel blocks available at The Blossom ~\$150
- October 9th Full day workshop
- Organizing Committee members
- ABRF institutional membership



**Key Characteristics of Level 0&1

- Annual revenue < \$50,000
- No subsidy provided by college or university.
- Departments are responsible to reconcile any deficits on an annual basis.
- Consist of individual investigator, small groups of investigators or departmental funding and support capabilities.

**Characteristics of Level 2-5

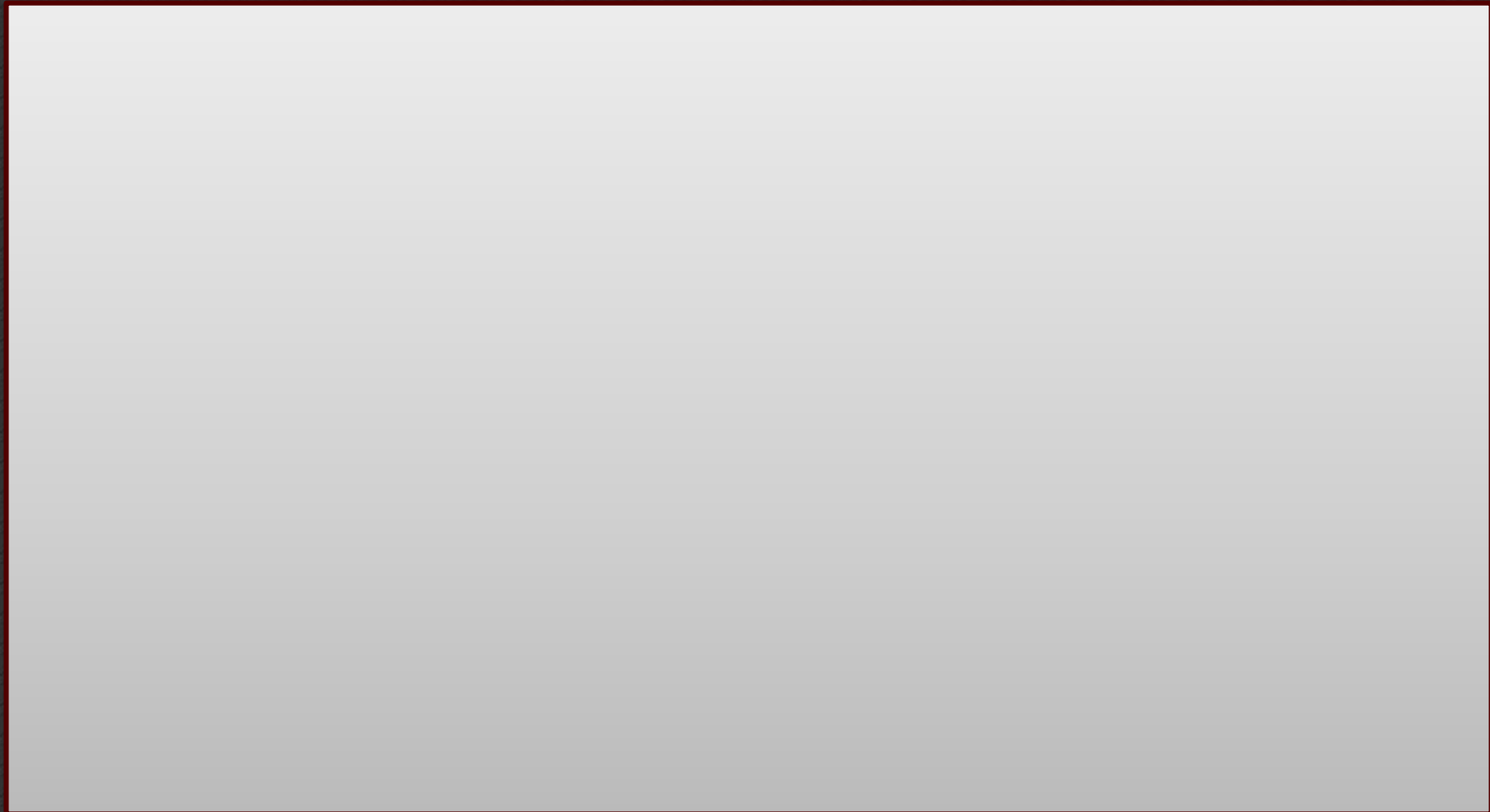
- Annual revenue > \$50,000.
- Consist of multiple instruments and/or services with related synergistic, and complementary capabilities.
- Formal budgets are submitted, reviewed and approved on an annual basis.
- University and college subsidies/support are requested on an annual basis and must be approved prior to the start of the fiscal year.
- Shared responsibility between user income, core and college/VPR.
- Demonstrate capacity to lead, foster, and/or initiate interdisciplinary collaborations and provides service to range of programs and disciplines.

**Key Take Aways

- Defining Core Facilities
 - Defined the essential components and desired objectives of a core facility.
 - Reviewed different methods of organizing and managing core facilities.
 - Recommending a tiered approach based on the breadth of who a core is serving, operating cost and revenue, and life stage (emergent v mature).
 - Sustainability requires a more concerted effort to close the gap between revenue and operating cost.
 - Performance based budgets that account for all the true cost of running a core facility.
 - Marrying the rate study process with annual budgets.

Rate Studies

- Better coordination with Financial Management Services.
- Addressing common concerns – e.g. lowest subsidized rate verses true cost of doing business rate = federal government rate.
- Rule and SAP revisions.
- Co-develop a Core Facility Operating Manual.
- TAMU and TEES mirroring Rate Studies process. AgriLife?
- VPR participating in rate study training.



Characteristics of Level 0&1

- Annual revenue < \$50,000
- Cores reside in and generally serves a single unit (department or college) and do not receive funding from VPR
- Only external, non-federal customers are required to be charged for services.
- Budgets are revenue-based and reviewed for approval annually.
- Rates are published and reviewed annually.
- **No subsidy provided by college or university.**
- **Departments are responsible to reconcile any deficits on an annual basis.**
- Equipment is operated by grad students, technicians and/or faculty.
- **Consist of individual investigator, small groups of investigators or departmental funding and support capabilities.**

Characteristics of Level 2-5

- Annual revenue > \$50,000.
- Services and/or instruments benefit several departments across campus.
- **Consist of multiple instruments and/or services with related synergistic, and complementary capabilities.**
- **Formal budgets are submitted, reviewed and approved on an annual basis.**
- Rate calculations are formulated based upon Uniform Guidance 2 CFR200 200.468 guidelines and university rate study SAPS.
- Published price lists are required and are to be reviewed and approved on an annual basis.
- **University and college subsidies/support are requested on an annual basis and must be approved prior to the start of the fiscal year.**
- **Demonstrate capacity to lead, foster, and/or initiate interdisciplinary collaborations and provides service to range of programs and disciplines.**

Characteristics of Level 2-5 cont.

- Offer support and/or leadership for the development of extramural grant and contract submissions.
- **Exhibit agility in support of new or translational research opportunities or strategic directions.**
- All users are required to pay for services or instrument use and training based on published rates.
- Dedicated director required with an advisory board highly desirable.
- **Professional lab managers (at least part time) oversees laboratory operations.**
- iLab used for core facility billing.
- Infrastructure to capture relevant business and research metrics with annual reports on metrics.
- **Cores require ongoing support at the college and/or university level.**