Institutional Management of Core Facilities during Challenging Financial Times

*Rand Haley**

Huron Education, Chicago, Illinois 60607, USA

The economic downturn is likely to have lasting effects on institutions of higher education, prioritizing proactive institutional leadership and planning. Although by design, core research facilities are more efficient and effective than supporting individual pieces of research equipment, cores can have significant underlying financial requirements and challenges. This paper explores several possible institutional approaches to managing core facilities during challenging financial times.

Key Words: academic medical centers, financial management, organizational efficiency, organizational innovation, organizational objectives, research institutes

INTRODUCTION

The challenging financial times facing universities, research institutes, and related organizations are, among other things, prioritizing proactive institutional leadership and planning. Indeed, the economic downturn is expected to have lasting effects on public and private institutions of higher education. For example:

- Significant state budget gaps are suggesting long-term reductions in state appropriations.
- Multiyear average draws from endowments will result in lower endowment funding for several years.
- Current measures taken to respond to budget cuts could result in declining stewardship, inadequate administrative support structures, and broad underfunding of strategic initiatives.
- Pressure on institutions' credit ratings could affect financing for future construction.
- Lack of funding for strategic initiatives could threaten progress toward academic missions.

By design, core research facilities are a move toward increased efficiency and effectiveness. Cores offer the potential for greater efficiency related to equipment purchase, repair, and service contracts. On the personnel side, cores offer the potential for greater efficiency related to salaries and benefits for technical, service-oriented staff. As others have stated:

"Institutions establish core facilities because they recognize that advanced technologies must be provided to maintain or improve institutional competitiveness. They recognize that they can afford to provide these technologies only with centralization."[1]

"The equipment in core facilities is generally of the very expensive kind, difficult for faculty to justify for their own individual laboratories, and is generally an instrument on which important experiments can be performed in fractions of the available instrument operating time."[2]

At the same time, core facilities come with significant institutional financial requirements and challenges—driven by specifics at the institutional and individual core level.[3] Indeed, institutional investments (or subsidies)—often cobbled together from various sources—are key for many core facilities. This is even more the case when institutions set out to calculate and fully understand the total (or true) costs of operating their core facilities—something that is rarely done. As a 2009 paper in this journal begins: "Perhaps the most important questions facing core and service facilities today relate to funding."[4]

The goal of this paper is to bring together these various trends and explore several possible institutional approaches to managing core facilities during challenging financial times.

MATERIALS AND METHODS

The concepts and institutional approaches presented in this paper have emerged from our focused work on the operations and management of core research facilities within institutions' overall research enterprises. Huron Education (Chicago, IL, USA) has conducted operational and strategic reviews of core research facilities at a broad range of research institutions (with annual research expenditures ranging from <$100 million to >$600 million). In addition, we have led numerous reviews of the overall research enterprises of universities that have addressed institutional

*Address correspondence to: Rand Haley, Huron Education, 550 W. Van Buren Street, Chicago, IL 60607, USA (E-mail: rhaley@huronconsultinggroup.com)

investment in, and management of, core research facilities. This paper is based on a presentation delivered by the author at a satellite educational workshop entitled, "Lean Management in Core Facilities", and held immediately prior to the Association of Biomolecular Resource Facilities 2011 conference in San Antonio, Texas, USA.

RESULTS AND DISCUSSION

Nine institutional approaches to managing core facilities during challenging financial times are introduced below. Although this list is not designed to be all-inclusive, the hope is that it will be sufficiently diverse to provoke useful thought and discussion among core facility stakeholders across a wide range of research institutions.

The institutional approaches explored individually below are:

1. cutting services or raising rates;
2. growing institutional use;
3. marketing services outside of the university;
4. better managing equipment transactions;
5. more proactively managing start-up packages;
6. exploring possible core consolidation or shut-down;
7. sharing core personnel and creating satellites;
8. developing interinstitutional core partnerships; and
9. crafting more disciplined core financial arrangements.

Approach 1: Cutting Services or Raising Rates

Cutting services or raising rates to users is not a novel approach, but it can be a feasible one. There are clear opportunity costs associated with institutional investment in any given core facility, which may prevent limited institutional resources from being invested in other core facilities (or other elements of the research enterprise) with greater strategic benefit.

On the whole, institutions are increasingly paying more attention to core-related performance elements, such as the following, to help guide decisions about services and rates.

- core facility usage levels and trends (vs. capacity)
- recovered revenues from cores (vs. operating costs)
- changes in the underlying science and research supported by the core
- competing sources for core services, including external (academic or commercial) or internal (e.g., competing core or a new instrument in a major user's lab).

Approach 2: Growing Institutional Use

By taking steps to increase use of a core facility, institutions can see resultant decreases in required user-fee revenues and/or institutional subsidies. Alternatively, decreases in use increase these requirements and decrease efficiency. Institutional approaches to grow use might include:

- taking steps to increase the visibility of a core;
- clarifying (and perhaps altering) core facility access policies and procedures;
- making a concerted effort to improve the customer service orientation of a core facility; and
- striving to demonstrate the value of the core to potential users on campus (e.g., via quality assurance/quality control metrics).

Approach 3: Marketing Services Outside of the University

Extending the concept of growing use, institutions may choose to focus energies on marketing core facility services outside of the university, especially to industry, in attempts to generate additional revenue. Outside users can be charged significantly higher rates (albeit checked by comfort level and sometimes institutional policies), potentially serving to subsidize campus use.

Approach 4: Better Managing Equipment Transactions

Better institutional management of major equipment transactions can provide opportunity funds for investment in strategic core facilities. From an institutional point of view, matching funds or cost sharing represents real costs, and some institutions are striving to manage these investments more proactively.

Similarly, as an example, consider the limited submission National Science Foundation Major Research Instrumentation program. More strategic management of the institutional process during the proposal stage—with a close eye on overall institutional benefit to the research enterprise (for example, taking into account what is already on campus)—can serve to reduce duplication and focus resources on the greatest needs and opportunities.

As another example, even if a principal investigator (PI) gets a major piece of shared equipment "as a gift" or as a grant without explicit institutional cost sharing, institutions are increasingly realizing and trying to plan for the fact that this acquisition often results in significant downstream institutional costs (such as service contracts), which are rarely assigned and budgeted.

Approach 5: More Proactively Managing Start-up Packages

Stronger, more proactive management of faculty start-up packages can potentially strengthen an institution's core facilities. In essence, this involves saying "no" to large pieces of equipment going into labs of PIs as part of new faculty start-up packages (with some exceptions), with the goal of optimizing the overall research infrastructure of the insti-

tution. In exchange, some institutions are working instead to provide access to existing state-of-the-art facilities and/or strengthen existing cores with new equipment and/or functionalities requested by recruited faculty members. In fact, some institutions are viewing this as an important issue related to research culture—striving to target and recruit true "team players," who also happen to be current or rising "superstars."

Approach 6: Exploring Possible Core Consolidation or Shut-down

Core consolidation or shut-down may eventually be the best direction for some facilities, and federal agencies have made some limited movement along this approach.[5]

Some institutions are stepping up their efforts to monitor and review changes to their core facilities' activities, looking at trends such as the following to signal possible management decision points to sunset support for a core (in many cases, to enable limited resources to be directed toward more strategically important cores):

- facility use
- technology required for cutting-edge research
- other available sources for services provided by the core (internal or external to the institution)
- required university subsidy
- benefits of maintaining a particular core at the institution (e.g., differences in service levels and/or quality control vs. commercial provider).

Approach 7: Sharing Core Personnel and Creating Satellites

Another approach involves exploring opportunities to share core personnel between similar facilities and/or to create "satellite" facilities. One challenge addressed via this approach is that of finding and financially supporting skilled core personnel in multiple-related cores at an institution. Possibly, oversight of core operations may be located at one site, but fully operational satellites might exist at other locations (where there is legitimate justification for some "duplication"), with a core director overseeing quality of service delivery, training, and education across the locations.

Approach 8: Developing Interinstitutional Core Partnerships

Core facility partnerships, formal or informal, between nearby institutions represent real, albeit challenging, opportunities. Formal, interinstitutional core facility partnerships between local institutions represent an intriguing approach, for which there is a good deal of interest, especially as institutional resources become strained and for the creation of expensive, new cores that the institutions do not possess. Examples exist in several metropolitan areas, where there are complementary research institutions, including Atlanta, Chicago, Indianapolis, New York, Pittsburgh, and San Diego.

Potential benefits of core partnerships include:

- financial efficiencies stemming from economies of scale and the reduction of unnecessary redundancy;
- larger user bases helping to even out ebbs and flows of use (and related fluctuations in recharge revenue);
- potentially increased scientific effectiveness, as sharing may enable more cutting-edge facilities with expensive equipment and highly skilled facility personnel; and
- limited laboratory space at institutions and the ability to make the case for core facility space.

At the same time, the potential challenges of core partnerships are numerous, including: distance, transportation, administrative and financial systems, operational and management barriers (e.g., access, priority, and trust), culture, institutional commitment and strategy, research risk, institutional policies and procedures, and federal and institutional compliance.

Approach 9: Crafting More Disciplined Core Financial Arrangements

As a final approach, institutions may choose to become more disciplined about core-related financial agreements or deals. To demonstrate, an example is provided.

Suppose an institution has received a large federal grant to support the operations of a core facility. Also, suppose that the institution chooses to distribute a share (X%) of recovered Facilities and Administrative costs from this grant back to the core (or to the unit running the core), where X% equals A% (the institution's standard distribution share) plus B% (an additional negotiated "special deal"). Over time, central institutional needs emerge for core facilities (including replacement equipment, service contracts, and seeding new cores), but there are limited available funds for such strategic investments (partially because of this additional targeted distribution of B%).

As suggested by the example, institutions may benefit from re-examining the way that they craft such financial arrangements related to cores, aiming to best weigh these types of requests and make strategic decisions via formal and informal mechanisms.

Arraying Approaches along Institutional Characteristics

Given this list of possible institutional approaches to managing core facilities during challenging financial times, perhaps supplemented with approaches from additional brainstorming, one next step may be to array the approaches along two axes:

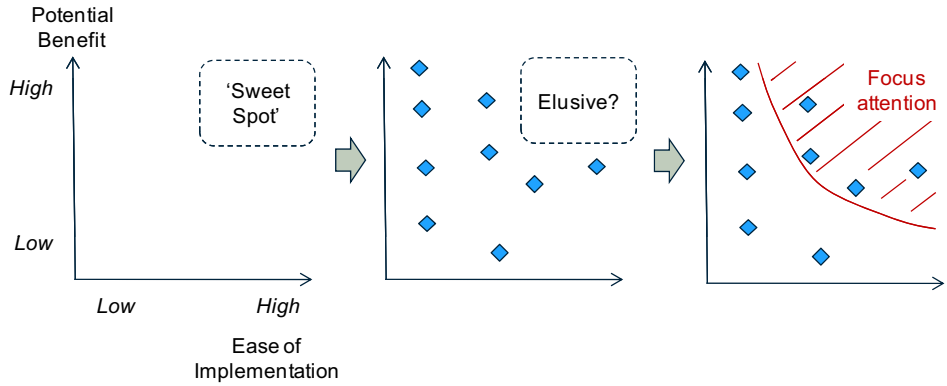

FIGURE 1

Schematic illustration of arraying approaches and selecting for additional attention.

- the potential benefit to the institution; and
- the ease of implementation at the institution.

In theory, this construct may help individual institutions identify approaches in that "sweet spot" of having high potential benefit but being relatively easy to implement.

As the schematic (Fig. 1) illustrates, this arraying of possible approaches may very well miss the elusive upper-right quadrant (i.e., the sweet spot). Still, by drawing a curve, which aims to capture approaches that have relatively high positions on both measures, an institution can identify those specific approaches on which to focus attention and on which to conduct additional analyses and stakeholder discussions.

REFERENCES

1. Slaughter CA. Bright but demanding future for core facilities. *J Biomol Tech* 2005;16:167–169.
2. Murray R. Shared experimental infrastructures. *Anal Chem* 2009; 81:8655.
3. Haley RA. Framework for managing core facilities within the research enterprise. *J Biomol Tech* 2009;20:226–230.
4. Ogorzalek Loo R, Nicolet CM, Niece RL, Young M, Simpson JT. Association of Biomolecular Resource Facilities survey: service laboratory funding. *J Biomol Tech* 2009;20:180–185
5. National Institutes of Health. *NIH Announces the Availability of Recovery Act Funds for Administrative Supplements to Support Core Consolidation*. Released Nov. 6, 2009, Notice Number NOT-RR-10–001, http://grants.nih.gov/grants/guide/notice-files/NOT-RR-10–001.html.