Organizational Models & Staffing – Leader: Stan Ahalt

Organizational Models: Some centers exist as separate entities subsidized by a consortium of individual universities. Others are created and operated by a single university. In either case, centers can be part of a larger Information Technology operation, or operate as a division within an institution’s research administration structure, or as a research center associated with one or several colleges within a university. Various hybrid forms of centers also exist.

1. Scope:
   a. Does your center operate on behalf of a consortium of universities, or serve a single university?
   b. Is this the right scope of operation for your center, or would a more limited or more expansive scope be useful?
   c. If your center operates on behalf of a consortium, are the consortia responsibilities defined in law or within the scope of a MOA?

2. Reporting:
   a. Who does your center report to within your organization?
   b. Does this reporting structure work well within your organization? Why or why not? :
   c. How does your organizational reporting structure impact your ability to pay, promote, and incent your staff and faculty?

3. Oversight Boards:
   a. Does your center have one or multiple oversight boards or advisory committees?
   b. Are the oversight/advisory boards/committees primarily technical or strategic?
   c. What are the positive and negative aspects of the various oversight boards at your center?
   d. Do you have the ability to influence the membership of the boards/committees?
   e. How formal are the reporting requirements for each board/committee?

4. Structure:
   a. What is the organizational form of your center, e.g., traditional hierarchical structure, matrix organization, or some alternative?
   b. Does your organization/center have its own charter or bylaws, or does it operate within the context of another formal defining document?
   c. How does the structure of your organization:
      i. impact your ability to react to change?
      ii. impact your ability to achieve your research objectives?
      iii. support your project management objectives?
      iv. impact your ability to respond to new technologies?

5. Staffing:
   a. How does your staffing align with your mission statement?
   b. In what areas are your staff most plentiful and most sparse?
   c. How do you create a career path for your staff and associates?
   d. How many staff are employed (FTE) at your center?
   e. Does your center house its own business office and/or HR?
   f. Is your staff sized correctly for your scientific objectives?
   g. How is staff and associate performance management, and/or annual reviews, achieved?

6. Academic relations:
   a. What percent of your staff hold academic appointments?
   b. What are the best ways you have found to interact with the academic community within your scope of operations?
   c. How extensive are your center’s interactions with:
      i. Undergraduate students
      ii. Graduate students.

7. Organizational objectives:
   a. What are the greatest challenges presented by your structure, staffing or reporting?
   b. What are the most significant contributions your organizational model has allowed you to accomplish?
Funding Models – Leader: Dave Lifka

As central subsidies for centers decline, various fee-for-service models are being put into place. The mix of services and fee structures range across a number of categories from maintenance and management of computing resources to consultation with major research projects, to a package of fees for services. Centers are also increasingly competing for extramural funds for both research and industrial contracts. We will discuss examples of each of these funding models and the markets or situations in which they appear to be most successful.

1. What is the value proposition for your institution's research computing?
   - Who are your primary "customers"
   - How do you promote this on your campus?
2. How sustainable is the current funding model for research computing at your institution over the next 5 years? 10 years?
3. What keeps you up at night with regards to the funding model for research computing at your institution?
   - What are your greatest Funding challenges?
4. How is Academic Research Computing funded at your Institution?
   - Fully paid for by your institution? Subsidized? Recovery Model? Federal or Corporate Funding?
5. If research computing at your institution has a recovery model in place can you describe how it works?
   - How much of your budget are you expected to recover?
6. Is research computing part of the overall campus IT offering at your institution or a separate entity?
   - Who is responsible (oversight/management) for research computing at your institution? (e.g. CIO, VPR)
7. Based on Questions 4-6 is there an obvious ontology of organizational and funding models that we can capture?
8. How do you define "Right Size" for your Institution's Research Computing?
   - How is it impacted by:
     - Number of users?
     - Based on number of Staff?
     - Types and size of resources (Compute, disk storage, networking, visualization)?
   - As a primary or a sub to another institution?
   - Please be specific as to the types of grants:
     - campus scale infrastructure awards such as ARI/MRI,
     - national scale cyberinfrastructure awards such as the very large awards from OCI (including hardware, software development, and TG support grants),
     - "regular" research awards from different directorates and agencies and how these may impact the center (say, by providing some of the hardware funds), and
     - outreach/teaching awards such as CI-TEAM or CCLI (now replaced by TUES).
10. Has your research computing center won federal funding awards?
    - What kind of financial & resource support did your institution offer to assist?
    - Please be specific as to the types of grants:
      - campus scale infrastructure awards such as ARI/MRI,
      - national scale cyberinfrastructure awards such as the very large awards from OCI (including hardware, software development, and TG support grants),
      - "regular" research awards from different directorates and agencies and how these may impact the center (say, by providing some of the hardware funds), and
      - outreach/teaching awards such as CI-TEAM or CCLI (now replaced by TUES).
11. Who supports access/use of National Cyberinfrastructure at your institution? How are they funded?
    - Campus Champions, research computing staff, good campus citizens?
Industry & Vendor Relationships – Leader: Amy Apon

1. Relationships with vendors
   a. How important are the relationships between academic centers and vendor partners? How much time does/should it take to sustain vendor relationships? How do you manage this?
   b. Are the vendor relationships with academic centers that are focused on large scale national infrastructure different than the vendor relationships with centers focused on campus-scale resources? Should they be different?

2. Resource acquisition, planning, and maintenance
   a. How significant is the hardware portion of your budget that has been supported through vendor match? Do you feel that you get the same level of aggressive pricing as everyone else?
   b. Are maintenance contracts and warranties a concern for you? How do you manage these?
   c. Are you worried about the longevity of particular companies in the HPC vendor space? Is this a factor in your product selection?
   d. How do you obtain your information about vendor reputation and qualification, and products? Are there best practices we could promote for getting this information?
   e. Are you utilizing new vendor-provided cloud computing environments? How is this incorporated into your operational budget, and how does it impact your acquisition planning?

3. Relationships with industrial partners
   a. Do you have industrial research partners? Are these managed through a consortium relationship or as individual contracts?
   b. Do you have an industrial advisory board? Who is on your industrial advisory board?
   c. How do you attract industrial partners?

4. Industrial contracts
   a. How do you manage IP with industrial research partners?
   b. Do you have an I/UCRC or other federal grant that specifically includes industry partners?
   c. What are the terms of your typical industry contract? That is, how many students and faculty are supported, how long is it, does it cover academic year and summer, does it have specific contractual deliverables or is it more open-ended as with NSF, etc.?
Succession Planning – Leader: Henry Neeman

1. If your center's director suddenly became unavailable (e.g., hit by a bus), how long could your center run without them?

2. Does your center's funding model mean that a change in director necessarily or likely means a change in funding model? For example, if your director is devoting themselves to making your center successful: when they move on, what if their replacement is not willing or able to do the same?

3. To what extent is your center's funding due to one or a few senior university officials who believe in research computing? If those officials move on, could your center's funding be in jeopardy?

4. If your center director were to leave the university, how committed is the university to replacing that person? More generally, is your center institutionalized, or is it dependent on a particular individual in the organization?

5. Other than your center's current director, who in your center has exposure to, and experience with the following?
   i. Administrative issues such as working with institutional officers (VP/VC for Research, VP/VC for IT etc);
   ii. writing grant proposals and other external funding mechanisms;
   iii. writing scholarly publications?

6. Is your center director currently mentoring a successor, and if so, how is that mentoring being conducted?

7. How often does your center director get asked to apply for positions at other institution?

8. How many of each of these kinds of staff could you lose and still maintain sufficient productivity for your users over the near, mid and long term?
   i. system-facing staff,
   ii. user-facing staff,
   iii. administration-facing staff and
   iv. national community-facing staff.

9. How, and from where, do you hire each of these kinds of staff, and how do you train them?
   i. system-facing staff,
   ii. user-facing staff,
   iii. administration-facing staff and
   iv. national community-facing staff.

10. How often does each of your staff meet with users face to face, so that they gain a solid understanding of user needs?
Metrics of Success and Return on Investment – Leader: Vijay Agarwala

1. What metric of success do you use?
   i. Are you able to measure what portion of your institution's research portfolio makes use of the research computing services offered by your center? Is it about 25% or is it much higher? How many research proposals you actively participate in i.e. support by helping develop some themes or helping write portions of the proposal or being listed as a co-PI or senior research personnel?
   ii. Are you able to make the case that with increased institutional investment in research computing operations, measurably higher levels of research funding can be attracted? Are you able to point to increased levels of inter- or intra-institutional collaboration by faculty as a result of your operations? Are you able to make the case that your unit's participation in proposal processes increases the probability of a successful outcome (grant funding being awarded)?
   iii. Do you make the case that if your institution doesn't keep up or increase its investment in support for research computing, the competitiveness of faculty in attracting research grants will be adversely impacted? Do you have a structure in place to keep track of papers published which have a significant computational part and which your unit has supported?
   iv. Do you have a role in hiring of faculty members? Do you help academic departments attract faculty candidates they wouldn't have been able to do if your research computing operation did not exist?
   v. Are you able to help in attracting graduate and undergraduate students? Does your institution highlight its support for research computing in attracting competitive students to its academic programs?

2. Return on Investment: First we need to characterize the level and type of investment and then measure its effectiveness and what it returns.
   i. Number of service units delivered? Size of systems, number of cores and memory per core, interconnects, amount of storage and filesystem level performance, software stack - both systems and applications.
   ii. Number of faculty members, post-docs, graduate and undergraduate students served (by departments and colleges)? Number of seminars, guest lectures, workshops and other training classes delivered? Number of consulting contacts and questions answered? What is the level of depth and complexity in engagements with faculty and students? Do you initiate and host invited talks?
   iii. System utilization levels: if your operation ensures sustained levels of high overall system utilization and high uptime, does it indicate high RoI?
   iv. Efficiency gained by eliminating clusters in closets? Scaling of systems and professional services by centralized support for research computing - more efficient use of staff time - all this is a part of RoI?
   v. Any other more quantifiable measures of RoI?