Research IT Governance Handbook

Initial Version: May 8, 2015[1]
Clarifications added June 8, 2015, for 1) role of VPR in reviewing and disseminating decisions of the AC and EC, and 2) step in working groups process to review current policies.

On December 3, 2014, Provost Nick Jones and Vice President for Research Neil Sharkey approved the "Recommendations of the CI/IT Governance Working Group" report detailing a new governance overlay in the area of research cyberinfrastructure. During Spring Semester 2015, the "Implementation Committee for CI/IT Governance" began establishing the structures called for in that report. This handbook summarizes those structures and details procedures to be used by the Advisory Council and Executive Committee for Research Computing and Cyberinfrastructure.

Mission
The mission of the Research Computing and Cyberinfrastructure governance overlay is to enable Penn State effectively to deliver the full spectrum of computing and data services required for current and future directions in research. To do this, the research computing and cyberinfrastructure governance overlay establishes faculty-led governance structures intended to be inclusive, forward-looking, and conducive to substantive involvement of stakeholders (faculty, IT colleagues, and students) in decisions concerning research-CI resources, facilities, and services. Research CI is critical to all researchers at Penn State, from focused high-performance computing users to users in the "long-tail" of research who work on local systems and individual desktop and laptop computers.

Based on the "Recommendations of the CI/IT Governance Working Group," this research governance overlay seeks to:

- establish "faculty governance" of Research Computing;
- connect faculty and IT professionals at every level;
- establish go-to individuals in every local unit (College, Institute, etc.);
- create clear channels of communication, bottom-up, top-down, and across the three IT domains (research, teaching, enterprise systems);
- create a broadly inclusive central forum for discussion and advice;
- create a manageably small Executive Committee to advise the Chair and the VPR;
- establish a clear relationships among the research computing entities at the Colleges and Institutes including the Institute for Cyberscience (ICS);
- establish clear relationships between ITS and research computing entities at the Colleges and ICS ;
- put the VPR in charge of advocating for research computing and arguing for the funding research computing needs to work well;
- foster entrepreneurial activities.

Research Computing and Cyberinfrastructure Governance Bodies

[1] The initial version of this handbook was assembled by the Research CI Governance Implementation Committee. As a self-governing body, the Advisory Council may review and modify its operating procedures as needed.

***Communities of Practice*.** Communities of Practice (CoPs) are groups of users with similar interests and concerns concerning research computing. Some will reflect administrative units; others will not. Each College and OVPR Research Institute should have a Unit Committee charged with identification and coordination of the unit's research computing and cyberinfrastructure needs. So should some other units (e.g., the Library).[2] Other groups dealing with particular CI issues or practices (e.g. users of "Big Data") are expected to form their own CoPs. These "domain CoPs" with functional expertise may be self-identified, or identified by the VPR, Executive Committee, or Advisory Council. Many of these domain CoPs will cross unit boundaries, and they may overlap. CoP representatives to the Advisory Council should possess strong research credentials and be engaged in research computing. Representatives designated by the CoPs identify issues and bring them to the Advisory Council (or directly to a standing committee or working group if one exists and is relevant) where they can be discussed.

***Advisory Council*.** The Advisory Council will analyze research computing and cyberinfrastructure issues, enable communication up, down, and sideways (between units, CoPs, and executive sponsors), and make recommendations about policies and priorities to the Executive Committee. The Advisory Council also provides a forum for discussion to establish links among both unit and domain CoPs. As these links are established, a network structure of cross-unit and cross-CoP communication will develop. The architects of the governance structure hope that solutions to many research computing and cyberinfrastructure issues will be developed among particular units or CoPs without needing to be addressed through the Advisory Council and the Executive Committee. The Advisory Committee is intended to be the main venue to address system-wide issues and coordinate on common best practices that are either tied to other university structures (e.g. risk management, HR, Provost), or that affect all IT support units (and in turn researchers). Ongoing IT management and support will continue to be provided by current IT support units, both central and local. The Advisory Council, its standing committees and working groups, and the Executive Committee, are to address major or exceptional issues that can't be solved locally, or where opportunities for coordination and policy setting by multiple units would benefit the collective.

Membership. Each CoP administrative unit (as judged appropriate by the VPR and the Executive Committee) will send at least one faculty representative to the Advisory Council. These representatives should possess strong research credentials and be engaged in research computing. The Advisory Council should also have significant representation from central and College/unit IT colleagues.[3] Representation from the Information Technology Leadership Council (ITLC, which consists entirely of central and unit IT personnel), and regular consultation with that body, are important. The Advisory Council will also have one graduate student representative from the Graduate and Professional Student Association. Each unit CoP is free to choose whether to elect or appoint its faculty and IT representatives, and will decide on the duration of its representatives' term of service. However, across the Advisory Council, terms will need to be staggered so that the Council has a mix of seasoned and new representatives in any given year. Domain CoPs may also send one or more faculty or IT representatives to the Advisory Council.

Leadership. The Advisory Council will have an elected chair and vice-chair. The chair and vice-chair will be elected for two year terms (re-election for a second term is permissible). The Vice Chair will typically become Chair when the Chair rotates out of that role. If the Chair for the following year and the Executive

[2] The initial list of "unit" CoPs includes the twelve colleges, the University Libraries, the OVPR Institutes (MRI, Huck, PSIEE, SSRI, and ICS), the Commonwealth Campuses, Hershey College of Medicine, and ARL.

[3] For the initial population of the Advisory Council, most administrative units have designated one primary faculty representative and one IT representative. This is determined by the unit, however.

Committee find that the Advisory Council will need additional domain expertise, they may seek out and appoint as many at-large members as seem desirable.

Executive Committee. The Executive Committee will make decisions about policies, recommend budget priorities to the Provost and VPR, and serve as a liaison between researchers with cyberinfrastructure needs and the executive level of University governance. When Executive Committee recommendations concern units outside the purview of the VPR, the VPR will take such recommendations to the Provost and President. The Executive Committee will be positioned to hear about recurring issues or collective needs, and then prioritize the need for attention to various cyberinfrastructure and research computing issues. In addition to reacting to needs, the Executive Committee will be a place to formalize planning and act proactively.

As necessary, the Executive Committee will work with the VPR and Provost to obtain funds to pay for necessary investments in research cyberinfrastructure. Paying for research CI involves a complex combination of "distributed support" from a variety of sources. A priority for the Executive Committee will be to figure out how we best mix and match funds from a variety of sources to provide cyberinfrastructure and support research computing. The Executive Committee (via its Chair and the VPR) will advance initiatives and recommendations to the Provost, and funds will be directly allocated to Colleges, Institutes, and other relevant units to enable implementation of recommendations and mandates.

Membership. Potential members of the Executive Committee will be *nominated* by the Advisory Council (at least double the number of appointees needed). They will be *appointed* by the VPR in consultation with the Provost, the College Deans, Institute Directors, and continuing members. These representatives should possess strong research credentials. Any member appointed to the Executive Committee by the VPR who is not already a member of the Advisory Council will automatically become a member of that body. The Executive Committee will consist of six members plus the chair, serving staggered three-year terms. The Chair will be appointed by the VPR and will serve a two-year term (and is reappointable). A Vice-Chair will normally succeed to the Chair.[4] The Director of the ICS will serve as a non-voting member of the Executive Committee (but may vote in order to break a tie). The University CIO/Director of ITS will serve *ex officio*.

***Working Groups/Standing Committees*.** One of the principal functions of the Advisory Council is to help populate "working groups" charged with making recommendations on particular issues. Some working groups will be standing committees; others will be temporary *ad hoc* bodies. We expect Advisory Council working groups on particular issues to play a critical role in exploring issues and developing alternative solutions and recommendations. Working groups are likely to meet much more often than the full Advisory Council. Some of these may require only two or three meetings while others may go on considerably longer or even evolve into standing committees of the Advisory Council.

Working groups should draw on the expertise of the Executive Committee and the Advisory Council membership. The Chairs of these committees might often be Executive Committee members. In any case, when possible there should be at least one representative from the Executive Committee to serve as liaison to ensure good communication between that group and the Executive Committee. There are many linkages between these committees and outside groups, and appropriate experts/representatives in other areas should be involved in discussions. Formally, working groups will be appointed by the Advisory Council and

[4] An alternative for Advisory Council/Executive Committee consideration would be Co-Chairs named with staggered appointments.

Executive Committee chairs, in consultation with members of the Advisory Council and Executive Committee.

***Research Guru*.** The "research computing guru" is envisioned as an individual (or eventually a small group) who will serve as a go-to resource for anyone on campus with a research computing question. The guru will develop connections to researchers and IT units, and develop service catalogs, a research computing and cyberinfrastructure website, and other resources for researchers and IT professionals. This should provide a one-stop resource for connecting researchers with available research CI resources. In practice, rather than answer every service call related to research University-wide, the guru will work closely with local IT units to serve as backup on research CI questions, provide "best-practice" materials relevant to faculty "onboarding" and other research computing and cyberinfrastructure issues, and facilitate the development of connections between units. The research guru reports jointly to the Executive Committee and the Director of ICS.

Procedures

Advisory Council voting. When voting is needed (for example, in electing the Advisory Council chair), each administrative unit CoP (that is, the 21 units identified in footnote 1) will have one vote.[5]

Executive Committee voting. Each of the 7 members of the Executive Committee will have one vote. A majority of the 7 votes is required for approval of recommendations. The Director of the ICS may vote in order to break a tie.

Decision Flow. We expect that most priorities and policies will be set mainly by consensus after appropriate information gathering, problem exploration, and open discussion between key working groups, the Advisory Council, and the Executive Committee. When necessary, solutions will be formally decided upon by the Executive Committee. Solutions and practices then move back down through the stack from the Executive Committee, through the Advisory Council, to CoPs (both unit and domain CoPs), where they will be ultimately put into effect. Formally, reports and recommendations developed working groups should be circulated to the full Advisory Council and Executive Committee for comment. Working groups may make revisions in response to those comments, and as necessary one or more meetings of the full Advisory Council may be convened to consider the report. The Executive Committee will then consider accepting, modifying, or requesting further analysis related to the report before relaying the recommendations to the full Advisory Council and/or VPR for implementation. When it is time for actions to be taken, decisions will be formally conveyed to the VP. After appropriate deliberation and consultation (for example, with the Provost, Deans, Institutes Directors, VP F&B, VP HR, and CIO), the VPR will respond back to the Executive Committee regarding how recommendations can be moved forward including implementation plans and processes. In addition to solutions moving down through the Advisory Council to units, the VPR will also transmit the information to the appropriate units and their administrators.

Executive Committee Nomination Procedures

- Nominations for the Executive Committee should be submitted to the VPR by mid-summer (initially summer 2015).
- In early summer, an internal call will be issued to the Advisory Council for nominations to the Executive Committee. Self-nominations are welcome. Individuals outside the Advisory Council may

[5] An alternative for consideration would be to include domain CoPs as well. The pro of this modification is that it includes the substantive groups that should be involved in governance. The difficulty is that domain CoPs are more fluid than unit CoPs.

be nominated; if appointed to the Executive Committee, they would be added to the Advisory Council.

- All nominees who accept their nomination will supply a CV and a short (one paragraph) statement of qualifications and interest.
- All names and statements will be forwarded to VPR.
- The VPR will announce the Executive Committee by late summer.
- In the initial set of nominations (2015), the VPR will designate staggered 1, 2, and 3 year terms of service.
- In the case of resignations or other changes in Executive Committee membership, the VPR may appoint new members from the prior set of nominees, or may request a new call for nominations from the Advisory Council.

Working Group procedures

- Standing Committees and Working Groups will normally be established by the Chair of the Advisory Council in consultation with the Executive Committee, though any group that *wants* to constitute itself as a working group is entitled to do so. The Advisory Council Chair will issue a call for volunteers, and he or she may then invite others to join, either from within the Advisory Council or from outside it. Getting requisite domain expertise is crucial.
- Initial working groups should begin their work during summer 2015.
- The Committee Charge will come from the Advisory Council Chair, in consultation with the Executive Committee. In general, the charge will be to investigate the current state of affairs at Penn State on the specific topic under consideration, evaluate possible actions to be taken in that area, and generate a report that identifies the relevant issues for the research community and makes recommendations for those desirable changes, presenting the pros, cons, challenges, and opportunities associated with different options (including keeping the status quo). This report should draw on the broadest possible base of perspectives and consult the full range of relevant stakeholders and University decision makers.
- Specific procedures
    - The Advisory Council chair should appoint a chair or co-chairs, in consultation with committee members.
    - Identify additional members to invite to the group. This could include other faculty, other IT experts, representatives of relevant administrative units such as risk management or the security office, representatives of the libraries, ITS, particular labs/centers (as examples). Working groups should seek to be inclusive and consult with the relevant stakeholders and decision makers outside the Advisory Council involved in the area under consideration.
    - Current policies and practices in the area under consideration should be gathered and reviewed. Again, this may involve significant outreach to others for use cases, policy identification, issues on the ground, and so on.
    - Develop a report and recommendations.
        - Reports should be kept short. They can be bullet-pointed (no excess verbiage is necessary).
        - The initial charge will include what the Advisory Council / Executive Committee recognizes as key issues in the area under consideration. However, as necessary the committee may, and indeed should, identify additional relevant issues.
        - The report should briefly summarize the current state of affairs at PSU regarding the topic/issues for the group, and relevant policies and practices in the topic area.
        - The report should identify issues and opportunities in the area.

- The report should present options for improvement, presenting pros and cons and arguments for and against those different options. Such pros and cons could include any debate among committee members ("Compute-intensive researchers believe that X is more valuable than Y. However, data-intensive researchers believe that Y is more valuable than X."), estimates of costs and the cost-effectiveness of various solutions, or recognition of what other elements of (say) policy at the University would have to change to implement an option.
- The committee should feel free to identify options outside the box of PSU. For example, if outsourcing is a superior to what PSU offers or can offer in the foreseeable future, or if a consortium model would be effective, the committee should feel free to discuss such options—and to recommend them if it sees fit.
- Benchmarking to other peer institutions, or citation/description of best/common practices at peers, is highly desirable if relevant.
- Topics under consideration in different working groups are likely to overlap. Groups may well wish to consult with one another and coordinate their efforts. The Advisory Council website (part of the ICS website) will contain lists of committees and working groups, their charges, and their membership.