

# Campus Research Computing Stakeholders and Value Propositions

## Introduction:

Research computing (RC) on college and university campuses involves continued alignment with diverse stakeholders. This document has been developed to provide campus research computing leaders with a high-level perspective on what these different stakeholders have “at stake” with research computing and data services. Importantly, these stakeholders have different combinations of interests -- some common and some competing -- all which need to be taken into account in the research computing enterprise.

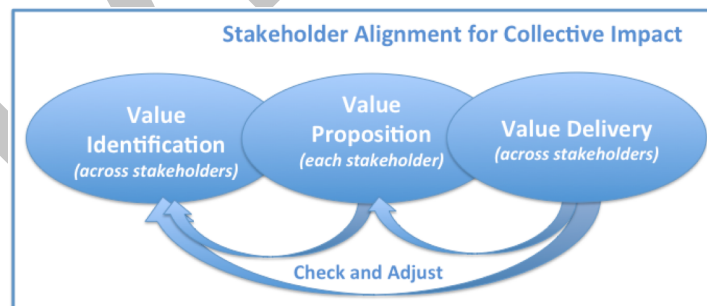
Note that stakeholder categories listed in this document include a mix of roles and titles that vary across colleges and universities. Also, RC constoria and initiatives are referenced throughout the document, which is an emerging and evolving ecosystem of multi-institution efforts committed to advancing research computing and data services. Research computing and data services are essential on campus and, as emerging professional domains, can only achieve their full potential through coordination and integration with the larger communities of practice in the RC ecosystem. The term “RC” covers computing, data, software, and related activities.

## Key Research Computing Stakeholders:

- Principal Investigators and Research Team Members
- Students (in classrooms) and as RC Interns
- Campus Research Computing Facilitators (e.g. CaRCC and ACI-REF, RC Software Engineers, XSEDE Campus Champions)
- Campus Executive Leadership (e.g. Presidents, Chancellors, Provosts, Deans)
- Campus Information and Research Leadership (e.g. CIOs, VPRs)\*
- Campus Research Computing (RC) Leadership (e.g. VP, AVP or Director RC; Associate CIO)\*
- Campus Research, Academic, Enterprise IT Services (systems, security, networking, engineering)
- Campus Research Computing/Data Science Instructors
- Those Responsible for IT/Research Cyberinfrastructure Workforce Development
- Research Funders

*\* Note: Titles, roles, and responsibilities vary across campuses with respect to research and research computing.*

## Visualization Linking Value Propositions with the Larger Value Creation Process:



Source: Adapted from *Lean Enterprise Value*, Palgrave (2002)

## Overarching Value Provided by Campus Research Computing and Data Services

- Campus research computing advances the frontiers of research and innovation through improved access to and use of research computing and data services.
- Campus research computing enhances all stakeholders' ability to identify, understand, and share leading practices and innovations in research computing and data services.
- Campus research computing enhances all stakeholders' ability to access domain-specific expertise in a range of fields and disciplines by being part of an ecosystem of RC and data professionals that exceeds the expertise on any one campus.
- Campus research computing fosters the development of the next generation computing and data workforce.

### **Stakeholder Specific Value Propositions:**

- **Principal Investigators and Research Team Members**
  - You will have access to research computing leaders and facilitators who know of complementary efforts on other parts of your campus and on a broad range of college and university campuses. When preparing research proposals, RC leaders and facilitators on your campus may be able to help, for example, in connecting you to resources for drafting broader impact statements, developing data management plans, locating application support, and forming interdisciplinary collaborations. RC connections are an assurance of additional access to resources that can improve the efficiency and quality of computation and data management, as well as helping pioneer new uses of compute resources and data architecture in diverse fields and disciplines. RC expertise can help avoid missteps when making strategic choices about software development and compute and data architecture.
- **Students (in classrooms) and as RC interns**
  - In the classroom you will likely find that there will be enhanced demonstrations and visualizations through the use of compute and data resources. For your own class projects, particularly capstone projects, there are research computing and data resources that you may be able to use in novel and compelling ways. You may find that research computing represents a career path that is of interest to you and the career paths on your campus and across the ecosystem will be more accessible to you as part of the next generation of professionals in the research computing and data fields. There are growing communities of practice among students with an interest in high performance research computing, data visualization, data analytics, data curation, software development, and related domains. RC consortia and initiatives are a gateway to these communities, including student activities at relevant conferences and workshops.
- **Campus Research Computing facilitators, including CaRCC and ACI-REF, RC Software Engineers, and XSEDE Campus Champions**
  - You are the heart of the RC value propositions, bridging among researchers and campus research computing and data resources. RC consortia and initiatives represent your broader community of practice across campuses, providing opportunities for sharing expertise and resources that bridge across disciplinary silos. These consortia and initiatives are committed to supporting career paths for you and providing opportunities for your interests to be understood and advanced, including building out the norms and leading practices in this emerging professional domain.
- **Campus Executive Leadership (e.g. Presidents, Chancellors, Provosts, Deans)**
  - RC support is essential to advance the frontiers of research and innovation on your campus, including preparation of the next-generation workforce. Membership in the RC consortia and initiatives helps your campus maximize the value generated from investments in research and research computing. It is important that your RC

professionals stay current with rapidly changing technologies. It is also important that your campus is represented and visible within national and international research computing ecosystems, connecting to diverse resources, increasing research productivity, and enhancing collaboration on multi-institution research initiatives.

- **Campus Information and Research Leadership (e.g. CIOs, VPRs)**
  - RC professionals on your campus may be part of your area of responsibility or may be in a companion function. Either way, they represent a unique set of roles that go beyond service delivery and include partnership in the structure and delivery of research projects. Membership in RC consortia and initiatives multiplies these areas of research computing expertise and the associated cyberinfrastructure investments, with a particular focus on the resources available to principal investigators and research teams across your campus. RC consortia and initiatives are dedicated to helping their members develop new research computing solutions, utilize the full range of computing resources, advance data and networking capabilities, document the impacts of research computing in grants and publications, increase the security compliance capabilities, increase compliance with data management plans, and ensure career paths for people supporting research, including research computing and research IT.
- **Campus Research Computing (RC) Leadership (e.g. VP, AVP or Director RC; Associate CIO)**
  - RC professionals and others in your organizations are all part of the value you deliver to the campus community. This includes supporting individual research projects requiring specialized expertise not present on your campus and launching multi-campus initiatives that exceed the capability of any individual campus. Through RC consortia and initiatives, you will be able to contribute to and learn from leading practices and innovations in research computing and data leadership. Smaller campuses can accelerate the establishment of needed research computing and data support systems; larger campuses can lead in the formation of regional and national networks. Career paths for people supporting research, including research computing and research IT, will be advanced within individual campuses and across the RC ecosystem.
- **Campus IT Services (systems, networking, security, storage, cloud services, engineering)**
  - RC professionals can join cyberinfrastructure and IT professionals across campuses, increasing opportunities to learn of the user needs and requirements for the broad range of research projects on your campus. The many aspects of IT are too often siloed, including systems, networking, security, storage, cloud services, and other domains in the IT world. RC consortia and initiatives can help the IT function to realize its full strategic potential as technology and research requirements continue to evolve at rapid rates. Research Computing is, itself, a customer and a partner with enterprise IT services. .
- **Campus Research Computing/Data Science Instructors**
  - As a professor or instructor advising students and teaching classes that require research computing and/or data science, RC professionals can help you locate application support, stay abreast of the latest innovations, and apply leading practices. Students, researchers, and staff with career interests in these domains can become active in RC consortia and initiatives in order to benefit from and contribute to the wide range of expertise available on college and university campuses (e.g. GIS, parallel computing, machine/deep learning, specific research computing applications, etc.).
- **Those responsible for IT/Research Cyberinfrastructure Workforce Development**

- RC professionals and the associated consortial and initiatives can lead the way in attracting, retaining, and motivating the diverse talent needed to support research cyberinfrastructure, research computing, and data science on campuses. There is deep commitment to bringing women and minorities into this part of the STEM world through outreach, mentoring, online resources, and other means.
- **Research Funders**
  - Continued advances in research computing and data services enables funding priorities at the frontiers of research by promoting the most effective use of compute and data resources within and among campuses. All participants in the research enterprise (faculty, students, postdoctoral fellows, and other research staff) benefit from improved research support, better and more current classroom experiences, and more effective training activities in research computing and data science. This not only leads to dramatically improved research outcomes across many fields, but also to a substantial growth in the size and diversity of the pool of well-trained people to perform computation/data-based research and to support research computing and data operations in the future. RC initiatives and consortia can be an important sounding board and incubator for new ideas at the leading edge of research computing and research cyberinfrastructure, as well as providing a supporting cyberinfrastructure that can quickly enable multi-campus initiatives.

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