Leveraging a Research IT Maturity Model for Strategic Decision Making

Workshop description and goals:

Research IT (computing, data, and related infrastructure and services) is changing at an accelerating rate, while the range of scientific fields and disciplines depending on research cyberinfrastructure is expanding and becoming increasingly diverse. A new Maturity Model for Research IT is being developed that identifies the range of relevant approaches as an input into strategic decision making -- with a focus on the front lines of research data and computing infrastructure, broadly defined. It is formatted as a questionnaire, to allow for self-assessment on levels of maturity across a range of measures, from infrastructure, to training and consulting support, to collaboration and sustainability.

The Maturity Model is designed to be useful to a diverse mix of stakeholders engaged with research IT, including campus research computing and data practitioners, the principal investigators and research team members (faculty, staff) with whom they work, and campus leadership. This workshop will provide background of the model and introduce participants to the framework and how it can be applied to a range of different institutions. Participants will fill out their own copy of the model and discuss specifics of applying the model at their respective institutions. Finally, participants will provide feedback to improve the model, explore future plans to make the model available as an online service, and discuss how the resulting aggregated data could be used in strategic decision making by institutions.

The current version of the Maturity Model presents the framework for evaluation and organization around a set of roles/activities or “facings” (including Researcher facing; Data facing; Software facing; Systems facing; and Strategy and Policy facing), as well as several dimensions for measuring maturity, including breadth of diffusion/access (from none to institution-wide), service operating levels (none, at high risk, prototype, basic, to priority/premium), and cross-institutional collaboration (none to exploring, piloting, sustaining or leading). A spreadsheet-based instrument allows institutions to evaluate their programs and services. Moreover, different stakeholders can ultimately weight the different factors depending upon their local context, requirements, and objectives. This is the tool that will be used by workshop participants, and feedback from workshop participants will help to refine and improve this tool before we make it more widely available. In the next phase of our work, we will design an online tool that will provide simpler access and application of the Maturity Model for a wide range of institutions, and will also aggregate data (with associated general metadata about respondents) to provide a comparative baseline that can be leveraged by the entire community. We will solicit input from the workshop participants about how they would like to use such data, any privacy or other concerns they may have, etc.

The Maturity Model is part of a larger body of collaborative work developing the people, resources, and services that support computational and data-intense research on campuses.

- The NSF sponsored workshops led by Nick Berente, “Professionalization in Cyberinfrastructure”¹ held in Santa Barbara in February, 2017 and “Organizing the Cyberinfrastructure Workforce”² in Alexandria, VA, in August, 2017 brought together research IT professionals and organizational scientists and resulted in a clearer understanding of the unique roles and challenges in this community.

- In March 2018, the NSF sponsored Campus Research Computing Consortium (CaRCC) held a workshop, “Cyberinfrastructure Professionalization” resulting in the “Research Computing and Data Professionals Job Elements and Career Guide”³, a framework for the work of Research IT professionals. These

workshops examined and articulated the differences between the roles and responsibilities of those working Enterprise IT and Research IT.

- In December 2018, this work was expanded to develop this Maturity Model at an Internet2 & NSF supported workshop coordinated by Internet2 with CaRCC, EDUCAUSE, and members from the broader higher education research IT community.

Proposed workshop timetable:

**Morning session:**
- Participant Introductions, overview of the objectives for the workshop (30 mins)
- Introduce participants to the framework and background of the model, and how it can be applied to a range of different institutions. (40 minutes presentation, 10 minutes discussion)
- Provide each user access to a copy of the model for their use, ensure everyone can work with the questionnaire (10 minutes)
- Break
- Working at tables, participants will fill out their own copy of the questionnaire for one “facing”, with guidance from the organizers, and in discussion with peers (60 minutes)
- Open discussion with all participants of experience, issues, observations (30 minutes)

**Afternoon session:**
- Second round of filling out the questionnaire focusing on a second “facing” (60 minutes)
- Open discussion round 2 (30 minutes)
- Break
- Participants will discuss specifics of applying the questionnaire for their respective institutions, and will provide feedback to improve the model. (45 mins)
- Finally, we will discuss plans to make the model available as an online service, what privacy and others issues must be considered with the data, and how the resulting aggregated data could be used in strategic decision making by institutions, and as an input to policy discussions. (45 mins)

**Workshop organizers:**

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Prof. Thomas Cheatham, Dept. of Medicinal Chemistry, and Director of Research Computing and the Center for High Performance Computing (CHPC), University of Utah  
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