



Onboarding Research Computing and Data Professionals

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ABSTRACT

Research and researchers have become more dependent upon the support of Research Computing and Data (RCD) Professionals throughout the entire research lifecycle as technologies, infrastructure, and services grow in technical complexity with increased activities that include areas such as computationally intensive data, AI and machine learning, and compliance data. The particularities of RCD professions are distinctly different from those of enterprise IT support personnel, emphasizing the explicit need for specific introduction and training. This paper provides a framework for onboarding RCD Professionals and provides a high level overview of the philosophy to provide context and motivation for onboarding activities. Although many of the details may be of relevance to other positions, such as enterprise information technology, this paper is specific to the RCD profession.

KEYWORDS

Professionalization, Research Computing and Data

ACM Reference Format:

Gladys Andino, Scott L. Delinger, Jacob Fosso Tande, Timothy Middelkoop, Claire Mizumoto, David P. Reddy, and Michael D. Weiner. 2024. Onboarding Research Computing and Data Professionals. In *Practice and Experience in Advanced Research Computing (PEARC '24)*, July 21–25, 2024, Providence, RI, USA. ACM, New York, NY, USA, 4 pages. <https://doi.org/10.1145/3626203.3670582>

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PEARC '24, July 21–25, 2024, Providence, RI, USA

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ACM ISBN 979-8-4007-0419-2/24/07

<https://doi.org/10.1145/3626203.3670582>

1 INTRODUCTION

Research Computing and Data (RCD) Professionals are individuals that work with researchers, students, and industry staff on the computing and data needs associated with their work or study. The terms Cyberinfrastructure (CI) and research information technology (Research-IT) are often used interchangeably with the term RCD; however, in this paper we will primarily use the term RCD. More information about RCD can be found in[6].

The RCD community uses the term *facings* to distinguish the types of work or roles that an RCD professional may perform, which are *Researcher-Facing*, *Systems-Facing*, *Software-Facing*, *Data-Facing* and *Strategy and Policy-Facing* roles. This is not to be confused with an individual's title, which may indicate a single facing. Many individuals' responsibilities will fall within multiple (if not all) facings to some degree. In this paper, we use the facings to indicate activities that may be specific to a facing. A more detailed description of the facings can be found in[10].

This paper results from work by the Campus Research Computing Consortium (CaRCC) Staff Workforce Development Interest Group[2] and the work during the 2023 RCD Nexus Day workshop on workforce development[11]. CaRCC is “an organization of dedicated professionals developing, advocating for, and advancing campus [RCD] and associated professions”[1]. RCD Nexus is a National Science Foundation-funded Resource and Career Center within CaRCC which is focused on developing survey instruments and job family frameworks, defining career arcs, and developing best practices for career development for staff and student RCD professionals[4].

In this paper we consider the onboarding process for RCD professionals as the one-time activities needed to bring a new hire into an organization, which will complement organization-wide onboarding procedures. We do not cover ongoing RCD-specific training that an RCD professional may do during their career.

This work builds on discussions in the CaRCC RCD Staff and Student Workforce Development Interest Group and follows a paper that enumerates the different phases of an RCD career [8]. The ASDA and US-RSE career guidebook [12] also contains guidance on onboarding (§5.2) and takes an approach consistent with this

paper by “... giving the person an understanding of how they fit into the larger work environment.” The guidebook also discusses culture, communication, technical ramp-up, mentoring, and professional growth, which may be applicable to RCD professionals.

2 ONBOARDING

The onboarding process is more than a simple checklist; it is a way to convey the mission, vision, and culture of the RCD organization to the new hire. During the RCD Nexus Day workshop on workforce development, the key components of this process were presented, and the ideas for the onboarding checklist were developed during the workshop[11]. We present the key components here to give more background about the process, provide a framework to develop a checklist, and provide context for the way in which many of the items should be presented. A complete example checklist developed by the CaRCC RCD Staff and Student Workforce Development Interest Group can be found in [5].

This paper is targeted towards onboarding a wide variety of new hires. The two main categories of team members are staff and students. Team members also have different roles or facings as defined above. New RCD team members may also come from different backgrounds (for example industry, enterprise IT, or faculty), which can change what items are covered and to what degree. Where appropriate, one should differentiate items that are more appropriate for staff, students, and different roles.

The onboarding process should be altered based on individual need. The process should also be a “living document” with feedback and as the team grows and evolves over time.

2.1 Student

When onboarding students, prioritizing their studies, research, and well-being over work is crucial, and this hierarchy should be communicated from the outset. Accommodating this priority is essential for a successful onboarding process. Therefore, it may be advisable to streamline the onboarding checklist, focusing on essential items rather than large organizational aspects, as students typically have reduced scope and interaction with the organization’s “political” aspects. Additionally, considering the often limited duration of student employment (a semester or year), time constraints should also be taken into account during the onboarding process.

The norms governing student work arrangements encompass various facets, including delineating the minimum and maximum weekly hours expected during a semester (e.g., 10 to 20 hours per week per student throughout the Spring and Fall terms). Collaboration with students to align their class schedules with work commitments is crucial, ensuring seamless integration of responsibilities. Furthermore, clarity regarding on-site versus remote work expectations should be established upfront, prominently outlined in job descriptions, and discussed during interviews. The allocation of home versus on-site hours may be contingent upon the supervisor’s work site arrangements. e.g., students may be mandated to attend in-person group meetings once a week and engage in one-on-one sessions with the education manager on-site. However, interactions with staff members or mentors for specific projects occur remotely, allowing students to autonomously manage their project hours asynchronously. Conversely, if there are core hours designated for

staff teams, ensuring the availability of all project members for collaboration or on-site work becomes paramount, necessitating the identification of team members and designated times for optimal coordination.

2.2 Staff

For staff team members, the checklist should be adapted to take into account the team or teams the new staff member will be joining and how those teams collaborate, as it may differ slightly according to the differing cultures of the teams. For example, Systems-facing teams may work from a ticketing system, while a software-facing team may work from code repositories, and a researcher-facing team may or may not work from different queues in the ticketing system. The individualized checklist should also take into account the degree of prior experience the new hire has as an RCD professional, their length of employment as a staff member at the organization (if any), their depth of knowledge of the computing hardware and software in use at the organization, and the role that they will be filling within the organization.

For example, some new hires may need additional support during the onboarding process with the landscape of the organization, the capabilities and management of the hardware and software, or the range of soft “people” skills required to be successful in their position, depending on their background and experience.

2.3 Big-Picture Philosophy

It is important for an RCD program that new hires and all team members understand the program’s mission and vision and where the program sits in support of the research and academic mission of the organization. The best “advertisement” for a program are the individuals who represent it. Regardless of where the RCD program sits in the organization chart, how it is funded, and how service is delivered, the individual team member is the living and breathing example of what the program has to offer. This representation of the program can have impact far beyond a single encounter, as seen by unsolicited rave reviews or the championing of an RCD program resulting from one team member’s successful response to a researcher’s request for support. When the program philosophy, mission, and vision are shared beginning at onboarding, team members can be instrumental in decision-making and become invested in the progress and success of the program. This foundational philosophy can be reinforced throughout the program and reflected during any encounters where the team member represents the program.

Mission and Vision Statement: Sharing a program mission and vision statement that complements the mission and vision of the institution adds to the team member’s understanding of their place in the big picture and enables them to make decisions that reinforce the services, training, and support goals of the RCD program. If an RCD program does not have a mission and vision statement, preparing to onboard a new team member represents an opportunity to include team members in developing the program’s mission and vision statement.

Tenets: Often, with the complexity of an RCD program that spans across the entire research lifecycle, further focus is necessary for team members to be empowered to deliver services and support

to researchers. Tenets, defined as “principles, beliefs, or doctrine generally held to be true”[3], can serve as such focus. Tenets help RCD program team members to stay focused on the research and the researchers, enabling them to champion the reduction of time-to-research and actually providing solutions to move research forward. Tenets can determine focus for a team when external requests conflict, such as when enterprise IT and the Chief Information Officer (CIO), the Chief Information Security Officer (CISO), and research affairs (a VP of Research, Provost, etc.) are all urging their top priorities. The development of tenets also helps to define appropriate “swim lanes” in those RCD programs that coexist with other institutional teams also doing RCD support. As an example, University of California San Diego’s Research IT Services program developed tenets for internal use to enable RCD professionals to support decision-making and prioritization[9].

Elevator Pitch: A strong, well-developed elevator pitch should communicate who you are, what you do, and what your mission and vision is in a short and simple statement that can be delivered in “the time it takes to ride the elevator.” Audience is very important as well. One cannot assume the audience understands RCD jargon or organizational positioning when delivering the program’s elevator pitch. Many programs have more than one pitch, depending on the audience, and may have a longer version that can be used and shared for publications and references to the program. The RCD landscape can span the entire research lifecycle, and depending on how much of it the RCD program supports, it can be challenging to synthesize the entire program into a delivery of just a minute or two or in a short written paragraph. RCD team members should use the same repetitive language – synonyms and rewording do not benefit the program’s messaging. Sharing the program’s elevator pitch with a new hire helps them understand how the program represents itself within the organization and prepares them to give the pitch themselves in the future.

Foundationally, if an RCD program has a mission statement, a vision, tenets, and an elevator pitch, RCD team members can move forward to support research and researchers with confidence. Building off of this, the RCD program layers services and support, partner collaborations, and administrative constraints (budgets, staffing, organizational responsibilities, etc.) on top of a clear RCD program “definition” in order to be successful.

2.4 Organizational Activities

In preparation for onboarding a new hire, the RCD program should reflect on the scope of activities and services it provides and update the service catalog or other documentation references for the program as a whole. Further, during this preparation, the RCD Program Director may begin to envision how to describe the service portfolio and other activities, as well as where and when the new hire will be tasked to specific RCD program responsibilities, as primary, backup, or another role. RCD programs provide technology support throughout the research lifecycle to research and researchers, and each program may differ in its focus. It will be important to distinguish exact services and support the organization RCD program provides and what else might be out of scope. For example, institutional RCD programs that are positioned in a High Performance Computing (HPC) Center may do limited data-facing activities and

may rely on its organization libraries to collaborate and provide support in this area. It is important to recognize how those partner support teams will be introduced to the new hire in their early weeks and months.

3 ONBOARDING CHECKLIST

The onboarding process can be divided into four distinct phases that are *getting ready*, *first days*, *first weeks*, and *first months*. The checklist should be specific to the RCD organization and should not include detailed organizational, divisional (information technology, office of research, or similar), or Human Resources (HR) onboarding and training. An overview of each phase is presented in the following subsections. A complete example of an onboarding checklist using this framework developed by the CaRCC RCD Staff and Student Workforce Development Interest Group can be found in [5].

3.1 Before the First Day – Getting Ready

The *getting ready* phase is for checklist items that may have long lead times ahead of the new hire’s start date (allocating space, ordering equipment) or major calendar events in the future (conferences, family obligations, major personal time off, etc.). Additionally, depending on the situation, some new hires may not have an RCD background and may request to be given background materials to help get them ready for their first day. However, many of the details should be deferred to the first weeks. These checklist items should indicate which parts are institutional and must be sensitive to the fact that the new hire is not yet an employee.

3.2 First Days – Big Picture, Elevator Pitches, and Essentials

The *first days* are about key information to help the new hire get acclimated. Big picture items (mission, vision, tenets) allow them to learn the culture and norms of the organization and how they, as individuals, fit into the larger picture. Essential items allow them to get connected to technology and to other people. Care should be taken in prioritizing the checklist to what is essential to get started, introducing immediate team members, and to whom or where to go to for help. Time should also be set aside for social and/or informal activities. Developing a plan for future weeks and assigning an onboarding ambassador at this time can make the entire onboarding process smoother.

3.3 First Weeks – Deeper Dives: Team, Systems, Services

Broader introduction to RCD program structure should wait until the first weeks, after the new hire is familiar with their own immediate team. Once basic familiarity is established, help them begin to understand the greater organization, how the RCD program contributes to research, and how the delivery of digital services and support can occur. Short term goals should be set for the new hire at this time along with an introduction to any short and mid-term projects that they may be involved in.

3.4 First Months – Details

For the remaining months, the onboarding activities are more detailed and are often specific to the new hire's role. These items should provide more depth in specific topics and provide more detail about the broader background and context around the position. CaRCC and other relevant research computing and data and related organizations should be introduced as well as regional and national resources including ACCESS[7] and state and regional education networks (RENs). The final items should develop a plan for continued professional development beyond the onboarding process.

4 SUMMARY

Onboarding new hires effectively to an RCD team can require additional steps beyond those conducted by an organization's HR and enterprise IT functions. Providing the new hire with contextual information and a supportive, welcoming environment can ease their transition into the team, allowing them to become effective team members rapidly and efficiently. RCD services are important to researchers working at organizations of all scales and types. While RCD teams vary greatly in size from a team of one to multi-team units, and in service provisions and support levels, the material above can assist RCD supervisors in developing or improving their onboarding processes by providing a framework of key components.

ACKNOWLEDGMENTS

The following people were instrumental in the running of the 2023 RCD Nexus workshop on workforce development, which inspired and provided materials for this paper: Betsy Hillery, Purdue University; Timothy Middelkoop, Internet2; Claire Mizumoto, UC San Diego; Anita Orendt, University of Utah; Tom Cheatham, University of Utah.

This work was supported in part by a National Science Foundation grant: OAC-2100003, an NSF-funded Cyberinfrastructure Center of Excellence (CI CoE) demonstration pilot – RCD Nexus. The authors would also like to acknowledge the broad community of volunteers who have contributed in workshops, working groups, and other activities over many years.

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