Event Title: Research Computing and Data Capabilities: A Tool for Assessment and Improvement

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* [Dana Brunson](https://members.educause.edu/dana-brunson), Executive Director, Research Engagement, Internet2
* [Claire Mizumoto](https://members.educause.edu/claire-mizumoto), Director, Research IT Services, University of California, San Diego
* [Patrick Schmitz](https://members.educause.edu/patrick-schmitz), Founder and Principal Consultant, Semper Cogito Consulting

Facilitator: [Jackie Milhans](https://members.educause.edu/jackie-milhans), Manager, Research Computing and Data Support Services, Northwestern University

Abstract: The range of academic fields and disciplines depending on research computing and data infrastructure and services is expanding and becoming increasingly diverse. But how do you gauge how well your institution is meeting current demands, as well as where it might make improvements? The [Research Computing and Data Capabilities Model](https://nam03.safelinks.protection.outlook.com/?url=https%3A%2F%2Fcarcc.org%2Frcdcm%2F&data=02%7C01%7C%7C4f3a299f99f14ea1d00f08d7dfd2e772%7Cdd4b037fe626495db0170cc0f7dddb37%7C0%7C0%7C637223969250141384&sdata=W567mb1hAFh%2BWyx3WANchT1MhOTC2vxTWHr49rgz1ak%3D&reserved=0) allows institutions to assess their support for computationally- and data-intensive research and as an input into strategic decision-making and organizational planning. The model was developed by a diverse group of institutions with a range of support models, in a collaboration among Internet2, CaRCC, and EDUCAUSE, and consists of a usage guide and online assessment tool. Learn in this webinar more about the Research Computing and Data Capabilities Model and how it can be used at your institution, as well as engage in a conversation about how this common community model can help facilitate communications and collaboration in this space. This webinar is hosted by the [EDUCAUSE Research Computing and Data Community Group](https://www.educause.edu/community/research-computing-and-data-community-group).

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**Jackie Milhans:** Hi, everybody. Welcome to the first open call of the Research Computing and Data Community Group. My name is Jackie Milhans. I'm with Northwestern University and I'm the manager of computing and data support services in our Research Computing Services group there. So, I am co-chairing this group with Sandy Shew. Sandy, I saw that you're on the line, would you like to quickly introduce yourself?

**Karen Wetzel:** Sandy, you may still be on mute. Ah, AV challenged right now. Happens to the—

**Jackie Milhans:** All right, Sandy, when you're able to get off mute, just let us know. He just sent me a, yeah, he sent a message, "I'm AV challenged now." Okay, so, no problem. So, Sandy is from Ohio State University, and so he's been co-chairing this group with me. I'm posting a link in the chat right now, and so if you could add your name to the attendance list, and there's also a column there if you'd like to add yourself to the Research Computing and Data Listserv. And so, that would be to share things among ourselves and other people in the research computing and data community. We'll send announcements on that Listserv regarding these open calls.

So, I just kind of wanted to quickly go over the purpose of the community group and then hand it off to our speakers for today. So, because we're opening up these open calls for the first time to my knowledge, and maybe they were going on for a while before, but we've revamped our charter for this group and I put the mission statement and our purpose statement in the agenda, in the Google Doc that I linked to in the chat. And so basically the purpose of this group is to foster collaboration, knowledge sharing in community among people like us. And so, people who might be research computing, data directors, people who might be facilitators or consultants or whatever word you might use, system admins, CIOs, anybody who's really supporting researchers to use computational or data aided research.

So, and then our purpose is to help support these researchers. And so, helping support the community of the research support professionals. Often times...so, we don't really have a professional organization, so we just want to be part of the network that already consists of CASC, CaRCC, and other organizations that you may have heard of. I want to just check if Sandy wants to introduce himself, or Sandy, are you still having other AV challenges? Give him a second to jump in. Seems like he might still be having challenges. Yeah, okay, no problem, Sandy. Do other folks from the steering committee of this community group just want to quickly introduce themselves, and then we'll hand it over to the speakers.

**Sheila Zellner Jenkins:** Hi, this is Sheila Zellner Jenkins from the University of Maryland.

**Jackie Milhans:** Hi, Sheila.

**Sheila Zellner Jenkins:** I'm part of the steering committee.

**Jackie Milhans:** Thank you, Sheila.

**Sheila Zellner Jenkins:** Glad to be onboard.

**Jackie Milhans:** Claire, did you want to introduce yourself?

**Claire Mizumoto:** Sure. I'm Claire Mizumoto. I'm from the University of California, San Diego, and I just joined the steering committee.

**Jackie Milhans:** And Ralph, did you want to introduce yourself? I saw that you were signed in. Thanks, Claire. I'm not sure if Ralph heard me. And then is Aslam here? All right, let me pass it over to our speakers. Oh, Craig, sorry I didn't see that you're here. Do you want to introduce yourself?

**Curt Hillegas:** Hi, I'm Curt, Curt Hillegas from the Princeton University…oops, sorry.

**Jackie Milhans:** No, go ahead.

**Curt Hillegas:** I'm the lingering chair and co-chair [laughs], is that my official title?

**Patrick Schmitz:** Emeritus chair.

**Curt Hillegas:** Emeritus chair, there we go.

**Jackie Milhans:** I think that is everybody, okay. All right, so let's hand it over, let me hand it over to the speakers. So, we have Patrick Schmitz, Claire Mizumoto, and Dana Brunson speaking today.

We see your presenter mode, Patrick.

**Patrick Schmitz:** You can?

**Jackie Milhans:** Yeah.

**Patrick Schmitz:** Good.

**Jackie Milhans:** The slide with the notes. The notes side.

**Patrick Schmitz:** Oh, really?

**Jackie Milhans:** Yeah.

**Patrick Schmitz:** All right, let me try that one again. How's that?

**Jackie Milhans:** Perfect.

**Patrick Schmitz:** Thank you. I have too many web browsers open.

**Jackie Milhans:** Sorry, Patrick, I just wanted to do a quick reminder. If you're not speaking, if you could mute yourself just so that we don't have interruptions. And then if you have questions during the talk, just put them in the chat, but Patrick, go ahead.

**Claire Mizumoto:** Great, I think I'll start us off. I just want to and thank everybody for allowing us to talk to you guys today and introduce the Research Computing and Data Capabilities Model. And we are...I'm, again, I'm Claire Mizumoto, I'm the director of research IT services at the University of California on the San Diego campus.

**Dana Brunson:** Hi everyone, I'm Dana Brunson. I'm the executive director for research engagement at Internet2.

**Patrick Schmitz:** Hi folks, I'm Patrick Schmitz. I'm principal consultant at Semper Cogito Consulting. I'll mention that the three of us are the working group chairs for the work that's producing this, and you can see there's a bunch of other working group members that have contributed to this as well.

**Dana Brunson:** So, this is a collaborative project and it's growing out of Internet2 working with EDUCAUSE and then CaRCC, the Campus Research Computing Consortium, which is people from many institutions that have contributed to this work because they believe it would help them and the community. So, if you're not familiar with CaRCC, this is a group of people working to support campus research IT. The focus areas include connecting groups across the ecosystem, professionalization work, defining stakeholders, and articulating a shared value proposition for research computing and data, and this project, which is the capabilities model that we'll be going into.

So, the motivation for this project is to help campuses work together to answer some difficult questions. How can we get a comprehensive view of our support? Are we missing something? And how can we identify our areas for improvement? So, we call this the Research Computing and Data Capabilities Model and just to make sure you know, the NSF uses the word *cyberinfrastructure* and we also often use *research IT*. The model provides structure to assess support. It will identify gaps in areas of improvement. Additionally, the model, due to the broad inputs from the community, provides the consensus view of how the community views research computing and data. And in the long term, the model will bring together baseline data about our community that we can use to inform policymakers and funders.

So, the model is designed to be useful to a diverse mix of stakeholders from campus research IT to campus leadership and everything in between, and we've also designed it to be useful across institution types and organizational models, so, large and small and even decentralized. So, today we'll go through several things.

So, next up will be Claire to provide some background of the model and key concepts, then Patrick will walk us through a demo of using the model and how to use the results with your campus leadership. And then, we'll wrap up with suggestions for how to get help, the roadmap, and how to get involved. Feel free to write questions in the chat as you think of them and we'll answer them at the end. And I will pass the baton to Claire.

**Claire Mizumoto:** Thanks, Dana. So, this morning I'm going to take a couple minutes to talk about the *facings*. For those of you who are unfamiliar with this terminology, we needed to find a way to organize all of the people who are involved in research computing and data so that we didn't get hung up on titles. With nearly every discussion it ended up getting sidetracked, hung up, if you will, on titles, for example, HPC user support, research facilitator or ambassador, or, heaven help me, concierge. In order to get past the title debate, we categorize roles as *facings,* focusing on the work. So, during a workshop about professionalization and cyberinfrastructure back in 2017, the idea of *facings* was born.

These are roles not individuals and, depending on the size of the organization, it might be that one or two people covered all of them or there could be multiple people in each of these roles. So, *researcher facing*. These include those who do outreach, consultations, advance support, as well as support in the management of the research life cycle. So, note that the CI engineer is included in the *researcher-facing* role, but this might be somebody who also has a *systems-facing* role.

The *data-facing* role often includes people outside of the traditional research IT like data librarians or data analysts, data scientists, and encompasses areas like data creation, data discovery and collection, analysis, and visualization. Other areas include research data curation, storage and backup, preservation. Notice that the *data facing* and *software facing* are separated out. We have them together to start and quickly realized that the focus is very different.

The *software-facing* role includes research software development, optimization or troubleshooting, research software package management, workflow engineering, cloud computing, containers. Rules for *software facing* include research software developer or engineer.

The *systems-facing* role include responsibility for infrastructure systems, system security and compliance, HPC administration, networking, and storage. These roles might be HPC systems engineers, network architects, or engineers.

The *strategy-* and *policy-facing roles* include those whose activities might include institutional alignment, funding partnerships, and engagement with external communities, and these roles include research IT leadership. Though as I said, the concept of the facings began with that 2017 workshop on CI professionalization in cyberinfrastructure and subsequently was adopted in the capabilities model in December of 2018 when work on this tool got its start. Other areas like CaRCC's monthly track calls and of course the ongoing activities of the research computing and data professionalization working group.

**Patrick Schmitz:** So, thanks, Claire. I want to take you through a little bit of the structure of the model. And part of the reason we started talking about the facings is that's one of the core organizing principles around it. So, we set up the kinds of questions that you're asked in the assessment tool to be grouped around those kinds of facings. Each of the facings has a series of questions or elements. We group them together by themes just to make it a little bit easy to understand where you are in the whole model. And then for each question we're going to ask a series of, well, a series of lenses, basically, that you have to assess.

So, the first one and probably the most important one really is the deployment at your institution. And so, for example, if they were asked do researchers have access to high-performance computing resources, you'll be asked, you know, do you have no deployment or support? Are you piloting or have some? Or do you have deployment institution-wide, literally for every department on campus. And so that's the kind of range that you're assessing. The next question recognizes that research is collaborative. It's a collaborative exercise and so on the support side you want to think about collaboration And so you're asked, do you have any other collaboration with other institutions? Do you have some or are you actually leading collaboration? So, those are sort of the level that you're assessing for your institution.

And then borrowing from some of the ideas that are more widely used in enterprise IT or an administrative IT where they're using things like IT Service Management, we want to assess what is the service operating level? So you might be doing it but you're, you know, maybe you're just holding it together with a couple of grad students or maybe you've got some staff and you're doing okay but you can't really go beyond what you're doing or maybe you're very, very well funded, you have lots of staff, you're regularly expanding and adding new things at a sort of priority of premium level. We're looking at that level. How do you run your service? And that's, you know, kind of asses how robust your offerings are.

So, now I want to shift to this demo that...You guys can still see my screen, yes? So this is a demo of what you would face if you were in the tool. And if you look across the bottom, you'll see there's a series of tabs in the spreadsheet. There's a summary sheet and then for each facing, we actually have another sheet. And starting with the researcher one, you'll see in these light red rows the grouping areas. So, there's one around research computing and data staffing, there's one around outreach, advanced support, and management of the research life cycle. Within each of those, then, we're asking the question, So, if we looked at like this first one, do researchers have access to introductory user support and training? And, you know, we might say, "Yeah, we're actually doing pretty well on that. We don't actually offer it for everybody, but we're offering it for many parts of the university. So, I'd say we've got support for parts of the institution." This is one where we're thinking about how we might collaborate with others, but we haven't really gotten much further than that, and we'll say, "You know, we're doing okay. We have a basic or economy level of service there." And you'll see that then I get color coding as I answer those questions, and then that computes an overall coverage there, you know, it's just an arithmetic combination of these things. And then we say, "Okay, the next one is, you know, do we have professional development and training? Yeah, we're doing really well for that and we're actually cooperating some with some other institutions, and we're doing all right with that." If I scroll down and think about some of these other questions, you know, maybe I come down to the research life cycle and we realize, you know, for my institution, this is something where we're doing okay. Let me pick one where we're not doing that well just to give a sense of this.

So, people have support for software, but if I'm looking at actually managing some of the software, this is one where maybe we're just not doing very well, you know, just for the sake of our argument. And here if we have no support at all you'll see sort of autofills across the row for me, and I'm not actually doing anything. And this might be an area that we say, "You know, we really need to do better at this." And so, I have a chance in this last column to mark this as a priority, and I'll come back to why we want to do that.

So, we have the same set of workflow across these different facings, you know, and you can, we'll give you a link so you can explore the model a little later, but basically we have these questions across the data facing. They're just different. Some of the areas are, you know, sensitive data, data compliance, data viz, discovery and collections, a lot of the kinds of things you would imagine across these different things. Software facing we're looking at everything from workflow engineering to managing software portability with containers and cloud computing. And so for system facing is probably the most complex or most well-thought-out, partly because I think this is an area that we understand better in many cases. It's got a whole series of questions, and this is one where you'll be gathering together with the folks who are providing out support to answer that.

And then, on the policy strategy, policy facing, you've got questions that are really around things like, How are you managing strategy? Do you have institutional alignment on your strategy? What's the culture like in terms of support for research across your institution? How are you funding this? Are you managing partnerships and engagement with external communities? Again, professional development, and we want to make sure that you're thinking about diversity, equity, and inclusion as part of your leadership around this. So, that's sort of how these different sheets look. If we filled the whole thing out, then we would end up with something.

And this is a demo of something after we filled everything out. This is the summary sheet here where then it's rolled up what I've done across all these different facings. This is the researcher facing, for example, and the data facing going through this, and it's rolled all that up into this summary sheet. So, I can see broadly we're doing reasonably well at researcher facing, data facing. The software facing we're not as strong. You can see that right away with the color coding. If I open that up, now I see where those grouping areas for the questions come in, and I see workflow engineering. This is a hypothetical. Workflow engineering is one where we don't have very much support at all. And research software development and optimization we're also a little bit weak on. And so, I can use this kind of a summary to present to leadership where we are in terms of our support across all these different areas.

Now, let me go back and you'll see that we have a computed coverage in this column. Then we have this thing, domain support. I skipped over that a little bit, but basically at the bottom of every facing you're asked for the facing, How well are you supporting all these domains across your university? Arts and humanities is often the one that people don't support as well because they have a tradition of supporting physical and life sciences, but we ask you to characterize that, then in the summary we're looking at, Okay, given that, now we weight our overall coverage to that. And basically what we're trying to do is emphasize the importance of supporting these technologies broadly. We've given a graphical view on the right. Again, that might be something you capture into a report if you were presenting to your leadership just to easily and quickly summarize, "Okay, how are we doing?" Remember, I marked one of those things for an area of priority. We also in this summary sheet then gather up all those things you marked as priorities for you, so that you've got a summary of the things that you might want to start incorporating into some strategic planning.

So, on the researcher facing here I marked a couple of things about outreach and then looking at the software facing where we knew we had some weakness, we put in a series of items, we marked a series of items around workflow because that was our biggest area of weakness, as you remember. If we look up here again, we had workflow engineering. We just had no support for it. So, we've marked workflow-related things as high priorities. And this is a way to capture some of those gaps and have some input directly into a strategic plan that you're starting to work on.

So, with that, I will go back now to our presentation and…I can't see what I'm doing behind the little video. Okay, so we looked at that and the slide deck will have some of these links. So we're going to post this slide deck on our website, and you can go through and see that, and it's got links to some of these things that I just showed you. So, if you're interested in using this, one of the first things to do is to take a look at the introduction and guide. And this is a document that basically takes you through some of the concepts that we've discussed today and also has some tips for how you actually want to assemble a team. And in particular, you want to think about where your support team might be able to address some of the researcher-facing and the system-facing areas. You probably want to get some additional input, for example, asking some of your library partners on the data side, asking additional IT partners to think about some of the other infrastructure pieces, and then thinking about leadership and others to consider the other facings. Then you'll go about dividing up the work. Because of the way the tool is structured based upon the Google Sheets implementation, you can collaborate on it. So, the different teams can be working on the different sheets at the same time.

Having gone through and done that first pass, you'll want to bring the team together and make sure that you interpreted some of the key concepts in more or less a consistent way, level set some of it and adjust, and then you can begin to plan the strategy that you wanted implemented to address some of the gaps and priorities. And remembering that not, almost no institution is going to end up at the 90% or 100% level. Nobody is going to do everything that you're not capable of it. And by the same token, not everything has the same importance. And so, just because you're not doing really well at something—that may not be important to your institution. So, that's why we distinguish between the areas that are simply areas of low support and what you've marked as a priority. So, Claire do you want to talk about getting some help while you're doing this?

**Claire Mizumoto:** Great, thank you, Patrick. So, yes, we'll be holding office hours in a…oops, we'll be holding office hours in April and May to answer questions that you may have, ideally after you've downloaded the capabilities model. We'll add more office hours after these dates are completed and once we understand the demand. There's also an email as well if you have questions.

Okay, so getting your copy of the tool. Fill out the request form, and it will prepare a copy of the tool for your institution, and it's in Google Docs and be made an editor. It'll be up to you to share with your team as you determine. So, I know there's a couple questions in the chat about that. You really have to think about the strategy on how you want to assemble the group of people to answer these questions.

Yes, you are correct. The spreadsheet is very detailed. So, don't worry, remember, they're guiding documents to help you get started like Patrick outlined, and of course, the office hours to talk with capabilities models working group members.

**Patrick Schmitz:** I'll reiterate that all these links will be available afterwards through the Docs. Part of what that forum also does is gather a little bit of demographics about your institution, which is going to be useful when we aggregate all the data into a central set.

**Jackie Milhans:** Okay, so thank you, Patrick and Claire, and so that looking forward, and I've seen some of the questions about this already, is the first thing we're doing, which is how we're starting here, is to support and promote the current version of the model, gather additional feedback and refine it, and also get initial baseline data. We are developing plans for version 2, which would be a hosted survey implementation that will provide more robust and better user experience, database back-end to enable reports, privacy policies, many other features, and one of the things that I think is really important here is this will help campuses see not only how they are doing but how they are doing relative to their peers, whether they're R1s, R2s, minority-serving institutions, etcetera. And in order to help make this a valuable community resource, bring experiences and stories of use together to help as many campuses as possible use the model.

Oh, I'm sure you all want to get involved now. So, there's a working group web page, and we welcome all levels of contribution to the working group. So, you can be as involved as you would like to be, you know, we even just need folks to provide reviews and feedback, but of course, more active engagement is always welcome. So, CaRCC also facilitates many other working groups and the wonderfully named People Network, which is a virtual year-round conference with tracks based on the facings, so just in time for today's environment. So, now I think we'd like to open it up to questions if you have any, and thank you so much for letting us bring this to the conversation.

So, I kept track of the questions and so, I'll go through them. Some of them you've already touched upon, but maybe you want to elaborate a bit. So, the first question was about the facings. And so there was a question that there are librarians who seem to be researcher data and software facing, and in this person's experience, researcher facing is very common in libraries, but this wasn't noted. So, could you elaborate on what researcher facing means in this case?

**Patrick Schmitz:** Claire, do you want to take that one?

**Claire Mizumoto:** Sure, sure. Though librarians definitely are part of the researcher-facing role, I think that bringing in, I think the unique thing about the whole idea of facings is that it's not exclusive to research IT or cyberinfrastructure. I kind of alluded to that when we talked about the data facing. And yes, it wasn't intentional that I did not include librarians in researcher facing, but they are very much. They're probably the first researcher-facing group, frankly.

**Patrick Schmitz:** Yeah, so the example title were really just examples and not meant to be exhaustive and, as Claire mentioned, many people actually wear a couple of hats across this. So, the idea is to think about the roles and activities and not the people. That's just how we organized it.

**Jackie Milhans:** Thanks, Patrick, and thanks, Claire. The second question was talking about how detailed the spreadsheets are, and you guys touched upon this talking about who should be answering what questions and maybe the types of people that you want to include in completing the assessment. So, is there, do you know of a role that probably is best suited to fill out the questionnaire, and if and when there isn't one person, is there a recommended process to complete it collaboratively?

**Patrick Schmitz:** Oh, yeah. This is a really good question, and it comes up a lot, but it's also fairly different, depending upon what kind of institution you're at. So, a very large institution may have whole teams that are addressing each of those facings, in which case you can draw a couple of people from each team and actually go through them. It is a detailed questionnaire on the one hand. On the other hand, it's not intended to be something that you really have to belabor. You want to expect that it could take a couple of hours per facing to fill out. You want to also resist having endless discussions about it. So, you know, there's a trade-off there as with any kind of assessment. I'm sure many of you have also been involved in some other assessments like the core data survey that EDUCAUSE provides. In a smaller institution, it may be that there's just a couple of people who are covering all of this and they can run through this.

What we've found is it's a really interesting aspect of this that when you gather a team, let's say, for the system side, you've got your HPC support people. You might have some people working on cloud things, and then you might want to bring in somebody from the network team and somebody who's in central IT dealing with some of the data center issues or possibly even security folks. When you start going through this, you often end up having some fairly interesting discussions, and some people have found that those discussions and then the discussions that are engendered by these questions are actually part of the value that they get out of the model.

So, this is attention in terms of how long you devote to actually filling out the model, but yeah, I think you'll get a lot of value by being a little bit more inclusive when you're thinking about this not just having a perspective of a core team that supports research computing, for example, but thinking about pulling in some of the other folks that are involved. Your own research IT or research computing and data leadership are probably going to be among the people that you'll be working with on that strategy- and policy-facing one, but you may want to have a discussion with your CISO or a chief policy officer or something like that in terms of some pieces of it because it's also looking at, well, how well aligned are you to some of the other campus-level strategies around some of this? So, the guide and that we linked to in the slide and it's available has some more discussion of this, but in general, as I said, I think the advice would be to be inclusive.

**Jackie Milhans:** Thanks, Patrick. So, there are other, there's about four other questions that have come in. So, there were questions, there are a few about if there's a self-assessment, if this is meant as a self-assessment for your user community…sorry, is this meant to be filled out by IT staff or the research computing and data type staff, or is it meant for the user community? And then a related question was if there are any surveys developed for researchers and administrators to help collect the data.

**Patrick Schmitz:** So, it's another point that's come up several times. The idea behind this at this stage is to be an assessment of the support you're providing to the researchers. And many of the questions are well, on the one hand, they're very much from the perspective of researchers. We often ask, "Do researchers have access to?" as opposed to, "Do you offer a service?" And the idea is to do it from their perspective. On the other hand, the technical nature or some of the service orientation of a lot of it is that it's probably better to be filled out by the folks who are providing these kinds of support services. Having said that, we have talked a lot about having discussions with researchers and what would their opinion be? If you asked somebody who was maybe departmental IT in the college of chemistry to take a look at it, would they have the same conclusions? At this point, we're still building a baseline of assessment data that allows us as community to understand how well are we doing, where our community is broadly understood to be the people who are providing these support services. So I think we're focusing on that more. We have talked a little bit about how *would* we present this to users and effectively gather their perspective on this. We haven't yet developed an alternative form for that, but it's definitely something worth talking about more.

**Jackie Milhans:** Thanks, Patrick. Another question for the three of you. There are questions about how many people, how many institutions have filled out the assessments so far. And also, consideration around anonymizing the data to share with other people or other peer institutions.

**Patrick Schmitz:** We've run a couple of workshops, and those have been places where a lot of folks have been introduced to this and help them get started to think about filling it out. At this point, we have had, oh, I think in the high 20s of institutions that have gotten a copy of it and they're in various stages of filling it out. Not a lot of them have completed it yet. As you've noted, it is fairly detailed, and it takes a bit of work to fill it out. We also have learned from working with our EDUCAUSE partners that without setting a deadline for a participation window, a lot of people put it off. And so, that may be part of what's driving the fact a lot of people downloaded, they're looking at it. We hear from a lot of people, "Yeah, we're working on it. We're really interested," and we're still building up that Baseline of folks who are using it. So, at this point it's still getting moving, and we don't have a ton of people who have filled it out, but as you say, I think at this point there's in the single digits of institutions that have completed it, and then there's in the high 20s, low 30s of people who are actually working through it at this point.

With respect to the privacy aspect of it, so the way we've set up the tool now there is a special account that is a CaRCC management account that owns the document because for reasons of the way Google Docs work, we can't actually transfer ownership to somebody who's outside. It's just a weirdness of it. That's why we make you an editor when you download it, and then you can manage the permissions on it. If you're really, really concerned about the privacy of it, you could make a copy of it, and then you'll own it and do whatever you want. If you do that, it's much harder to contribute your data to the community data set, and that's why we did it the way we did. Having said that, we have a very firm commitment to protecting the privacy of an individual institution around this. So, we will never release a data set that has all those details in it, and when we're building reporting that will be of interest to the community, we also won't allow reports against any demographic slice, right? We talked about gathering information, you know, what the Carnegie classification is: Are you public-private? Are you an MSI or an HBCU? When we think about those things, those are useful for comparing yourself to the community and saying, "Okay, how are the other R1s doing? How are the other R1s in my state doing?" We won't ever do reporting that would yield fewer than five participating or contributing institutions. And that protects the level of anonymization in this. We think five is the right number. That's what we've learned from other areas. We may adjust that if we get better advice, but the point is nobody will ever see an individual institution's responses or will they be able to see even through an abstract interface to be able to figure out, "Oh, if there's only one in this state I know who it is." I hope that answers that question around some of that. We know that's a sensitive issue. There's a really great value in having this aggregated data, but we also want to respect the privacy of institutions who don't want to reveal that much about where they are.

**Jackie Milhans:** Thanks, Patrick. This is a question that I remember asking or having questions about when I was attending the session at Perk about this, but the question is, How does the survey handle services that are only available to certain parts of the campus or institutes? So, services that only live in a certain center or maybe in a medical school. That's a problem that we have at Northwestern. So, how does the assessment handle that?

**Patrick Schmitz:** So, that's exactly why we have that, we have a set of choices for deployment to the institution. And the most, a very typical answer to that is that the service is available to parts of the institution, and that's sort of a four on the scale of five in terms of your capabilities. There are institutions that are structured so that if you offer something, everybody gets access and so then you can honestly say, "Yes, it's deployed across the entire institution." That would be the five level, but it's very common just to say, "Okay, well we offer this, but we only have it in this area," or conversely, it may be that because of your funding models, it's theoretically available to everyone but certain schools are using, for example, their research overhead to subsidize it, and other schools don't have the ability to do that.

So, maybe your sciences and life sciences can get access for almost free, but the reality of somebody in arts and humanities is they'd actually have to pay a fairly exorbitant price to use the HPC Center, and you'd have to ask yourself, "Is it really available to everybody on campus?" So, there's a certain amount of judgment there, and we talked about that in the guide, but I think it's going to be very common to say, "Okay, we have it piloted in one school, or we have it available to some parts of the institution, but not all." That's a fairly typical answer.

**Jackie Milhans:** Thank you. So, there are a couple questions at the end. One quick thing that I do want to say is that we will share the office hours in an email, and Karen mentioned that we'll share the slides, but more questions for the three of you, Patrick, Dana and Claire. They're starting to come in. We're kind of caught up now for the ones in the past. So, the next one would be from Carl, and if there's any characterization other than return on investment captured on this.

**Patrick Schmitz:** Return on investment in terms of a strategic plan that comes out of it? I'm not sure that I understand the question exactly.

**Jackie Milhans:** Carl, did you want to elaborate in the chat on your question? Yeah, Karen mentioned it. If it's easier to go off mute and just ask, please go ahead. I think that we can open it up now and know that Greg Madden and Ron Hutchins have questions as well.

**Carl:** Yeah, in terms of all the effort required to complete the information in the tool.

**Patrick Schmitz:** So, no we don't have. At this point there's no data that would inform sort of an ROI on that. I think what we have heard from a lot of folks in leadership is two things. One, having a structured rubric really helps them to make the case to leadership for areas of investment and being able to say, "You know, this is where we are, given how the community thinks about this support. These are areas we need to invest." Measuring that ROI in terms of how effectively you make the argument for investment is, as you know, pretty difficult. I think especially in higher end I often think about value on investment rather than return on investment, and that's something that you have to judge a bit for yourself. I think one of the things to think about there is if you're not certain that it's going to make a significant difference in your funding, then you may want to moderate the investment you put into it, which means, you know, you'll go through and you won't agonize over every question. You may assemble a smaller team and push through it to get pretty good data, and that pretty good data will yield some pretty good results.

If you know that you can make a much more effective argument, and many schools have found this with these kinds of things, if you can make an argument relative to a standard baseline in the community and in particular once we have that baseline data and you can compare to your peers', it's much easier to make an argument around investment with leadership to show, "Look, we're behind our peers in these areas and we need to invest." This is only one input into a strategic plan. Obviously, you're going to look at what your research strategies are. If the campus has said we need to make a big new push into a given area, then that's going to inform where your priorities lie as well.

**Jackie Milhans:** I think, Curt, did you have something to add?

**Curt Hillegas:** I did. So, CASC currently has an effort, a working group that's been working for a couple of years, and we've started producing our first deliverables. We did a pair of surveys, one last spring and then a follow-up in the fall, a much larger follow-up in the fall, where we talked about how schools/universities are measuring the return on investment on both their on-premises and commercial clouds usage, and we're now undertaking a kind of a further study to figure things out. So, for CASC organizations, we're asking people to participate in that further study, but I guess this can be a good place to pitch CASC as well. If you're interested in what CASC is doing, we would love to have new members as well.

**Jackie Milhans:** Thanks, Curt. Dana, Claire, and Patrick, a couple other questions came in. This is from Greg Madden, just talking about, is there an intention to address the research enterprise? So, understanding that it would explode the scope and require additional questions, but in addition to research or facing, he has research-administration facing, research-leadership facing, research-institute facing, and distributed IT–facing services and staff. And so, is there an attention to address the rest of the research enterprise, or is this staying focused on the researchers?

**Patrick Schmitz:** Well, I do think some of the facings we have subsumed some of those things. So, the strategy and policy facing includes a lot of the leadership aspects including funding, including policy. We don't think about…we're not including some of the administrative support areas as activities here. But we do recognize that engagement with those folks is an important aspect of how you're doing your support. And I'll let you…I think that Dana does a lot of work with the People Network and some of the broader community there. Do you have anything to add in terms of, you know, how broadly our facings are currently covering the community and what areas we don't cover them?

**Dana Brunson:** Yeah, so first to agree with you, I think much of this, or at least we tried to incorporate much of this, into the strategy- and policy-facing roles and feedback, of course, is welcome on ways we might improve that without exploding the scope too much. As you can see, there are a lot of questions already. So, it's been a struggle really to develop, a lot of time and many people involved in developing those questions and bringing it down to what we hope is a reasonable number of questions. And we did talk about the People Network, right, with all the facings, but, for instance, the strategy- and policy-facing roles of that, you know, we see is as CASC, as Curt mentioned. I'll give them a plug, too, as being in that role. And so we want, as part of what we do as CaRCC, is to facilitate and leverage and point people to the right groups for various things that they want to do. I think that's all I have to add, if that helps answer the question.

**Jackie Milhans:** Thanks, Dana, thanks, Patrick. And then I have a final question that I had seen from Ron Hutchins: Has NSF expressed any interest in the results for planning purposes?

**Patrick Schmitz:** Dana, do you want to speak to that?

**Dana Brunson:** Yeah, so I can't particularly speak for the NSF right now, but I will let you know that we are grabbing as much of their time as we can, mostly on Zoom these days, to show them about what we've been doing and the community, how they're reacting to it, and as we get more community feedback, especially if people say, "Yes, we've used it and it's wonderful," to go to them and looking at also talking to them about potential funding mechanisms for phase two. But so far, their response has been very positive. They like seeing what we're doing and appreciate that it's a community-driven effort. So, I'm very hopeful that, you know, I haven't—

**Patrick Schmitz:** We might mention much of the work today has actually been supported through an NSF grant.

**Dana Brunson:** Exactly.

**Jackie Milhans:** And so, that is all the questions that I had seen in the chat. If you guys want to open it up for other questions either putting them in the chat or coming off of mute.

**Patrick Schmitz:** Yeah, I did go ahead and post a link to the working group site where you can get a link to the slides and look around and see some of the other information we linked to some of the other resources if folks are interested.

**Jackie Milhans:** Any other questions?

All right, well, I want to thank Patrick, Dana, and Claire for coming to talk about this and kicking off our monthly open calls. I think this was a really great topic to kick off our open calls, and I know that a lot of work by the three of you and several others went into creating this tool, so thanks to everybody who was a part of this. Next month we plan to have a call regarding supporting researchers remotely, trying to give some information in a timely way since we're all away from work and our offices right now and not meeting face-to-face. So, please keep a lookout for that.

**Patrick Schmitz:** Thank you, all. I just want to say thank you for hosting us. We really appreciate getting to talk to this community, and I'm really glad to see that this community group is coming back together again.

**Jackie Milhans:** Yeah, I'm really excited. Thanks, everybody, who really helped kick this off. So, all right, well with that I will go ahead and close this. Thanks, again, Patrick, Dana, and Claire. Thanks to everybody who joined today. Take care.

**Patrick Schmitz:** Thank you.

**Dana Brunson:** Thanks, everybody.

**Jackie Milhans:** Thank you, everyone.