

PROJECT INFORMATION**Principal Investigator**

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Grantee Organization: Code for Science and Society**Amount Requested:** \$50,000**Requested Start Date:** 1 February 2022**Requested End Date:** 30 June 2022**Project URL:** <https://www.researchsoft.org/lorentz/>**PROJECT GOAL**

This proposal will support “Vive la différence – research software engineers” a hybrid workshop to consider how research software engineering could be reframed to place diversity, equity, and inclusion (DEI) as a central organizing principle in research software engineering.

OBJECTIVES

The workshop will enable participants to share best practice, network, examine key levers of change in their own communities, identify collaboration opportunities, and create an informal network of champions in this area.

PROPOSED ACTIVITIES

This proposal will provide support for travel for participants to attend the in-person workshop at the Lorentz Center in the Netherlands 19-22 April 2022, and for the organization of online events from March-May 2022.

EXPECTED PRODUCTS

1. Travel funding for up to 15 workshop participants to the in-person meeting 19-22 April 2022 in the Netherlands
2. Coordination of online events March-May 2022

EXPECTED OUTCOMES

1. Coordination of inclusive, accessible, hybrid events, with diverse participants.
2. Report on the workshop outcomes written collaboratively by participants.

Section 2. Proposal - Vive la différence – research software engineers

1. What is the main issue, problem, or subject and why is it important?

This proposal will provide support for “Vive la différence – research software engineers”, a workshop to consider how research software engineering (RSE) could be reframed to place diversity, equity, and inclusion (DEI) as a central organizing principle. RSE combines professional software engineering expertise with an intimate understanding of research, and is becoming increasingly essential as the role of research software is becoming at once more critical to scientific discovery, and more difficult to sustain.

Community involvement is a key element of RSE, and broadening the range of contributors will improve scientific and social outcomes. This workshop will bring together DEI agents of change who have not previously collaborated to identify how to expedite the culture change needed. The workshop will enable participants to share best practice, network, examine key levers of change in their own communities, identify collaboration opportunities, and create an informal network of champions in this area. Supporting change agents is a key part of the workshop aims, as large-scale system evolution depends on multiple incremental changes – led by people.

The research software community is well situated to evolve to frame DEI at its center due to its dependency on community involvement for innovation and sustainability. Expanding the pool of research software contributors is a concrete, desired outcome that improved DEI could contribute to, with benefits including increased innovation as diverse teams can improve scientific outputs (Campbell et al., 2013; Liang et al., 2007), and increased sustainability (Botvinik-Nezer et al., 2020; Dunbar-Hester, 2020; Vasilescu et al., 2015).

This proposal will provide support for travel for participants to attend the in-person workshop at the Lorentz Center in the Netherlands 19-22 April 2022, and for the organization of online events from March-May 2022. The workshop will bring together representatives of the increasing array of different types of organizations and initiatives in this space, as enabling more alignment and networks between these has the potential to create the critical mass needed for some outcomes. These will include national RSE associations, DEI initiatives in the research software community, and industry. The report on workshop outcomes that will be written by participants is expected to provide an invaluable resource for the community on best practice, key initiatives, and relevant research.

The workshop aims align with Alfred P. Sloan Foundation’s focus on developing practices, norms and institutions that can better promote the development and adoption of discovery-enhancing software. The workshop also supports the Sloan Foundation’s commitment to DEI by improving the health of research communities.

2. What is the major related work in this field?

Significant cultural change is needed in the RSE community to increase the DEI that can facilitate the rewarding and enabling research environment needed to enable higher-quality research, by increasing innovation, collaboration and productivity. Redefinition of broader research culture to embrace DEI is also a major challenge, and novel solutions to complex research challenges need to come from a diverse, engaged community. Available data reveals a more significant lack of diversity than in the mainstream research community, and there is almost no research on equity and inclusion for the 330,000+ research software engineers worldwide (Hettrick, 2020). International analysis in 2018 on research software engineer demographics found that 73-92% were male, and most commonly ranged in age from 25-44 (Philippe, 2018). 2018 data specifically on United Kingdom research software engineers documented a breakdown of 14% women, 5% ethnicity of black, Asian and minority ethnic/mixed, and 6% reporting a disability, with these figures being <50% less than for the UK workforce as a whole (Chue Hong et al., 2021a).

There are many initiatives focused on improving DEI in different disciplines, geographic regions, and/or focus areas (such as team composition or training). ReSA analysis found that DEI was a priority for 25% of the 28 research software initiatives profiled in the ReSA People Roadmap (Barker, 2021). Whilst there are many RSE events that include a DEI focus or session, this workshop will provide the first opportunity for practitioners to come together to focus explicitly on this topic. The Lorentz Center is an ideal venue, as a workshop center dedicated to hosting international scientific meetings that are characterized by an open and interactive atmosphere, to bring diverse scientific fields and minds together.

3. Why is the proposer qualified to address the issue or subject for which funds are being sought?

This project will be led by the ReSA Director, Dr Michelle Barker, with support from the ReSA Community Manager, Kimberly Hartley. ReSA is supported by top global research infrastructure institutions to function as a backbone organization across the research sector. As Director, Dr Barker has enabled ReSA to achieve sector-wide impacts towards achievement of the ReSA mission to bring research software communities together to collaborate on the advancement of the research software ecosystem. This includes development of the ReSA People Roadmap, a community consultation in 2021 that facilitated identification and prioritization of the major issues related to personnel challenges faced by the research software community, and included identification of DEI initiatives.

“Vive la différence” is co-convened by a steering committee comprising Michelle Barker and the following:

- Mozhgan Chimeh - GPU Developer Advocate, NVIDIA, UK
 - Chair of various Women in High Performance Computing workshops since 2018

- Former Software Sustainability Institute Fellow focused on training and diversifying both RSE and high performance computing communities
- Trustee of the Board of the RSE Society, UK
- Sean Goggins - Professor, University of Missouri, USA | Community Health Analytics Open Source Software (CHAOSS) Project Lead
 - CHAOSS initiatives include a DEI Working Group that aims to define metrics and methods to help others measure and center diversity, equity, and inclusion in their own Open Source projects; and Diversity & Inclusion Badging Program for events.
- Anna-Lena Lamprecht - Assistant Professor of Software Technology, Utrecht University, Netherlands
 - Committee member of the Netherlands RSE chapter.
 - Experienced in convening Lorentz Center workshops.

4. What is the work plan or approach being taken?

Organization is already well underway for this event, with details of the 50 confirmed participants and draft agenda included in section 5A. Remaining activities include:

Activity	Person responsible	Duration	Milestone
Liaison with workshop committee, Lorentz Center, and speakers to finalize hybrid events	Michelle Barker	Ongoing	
Event communications	Kim Hartley	Ongoing	
Coordination of inclusive, accessible, hybrid events, with diverse participants.	Michelle Barker, Kim Hartley	March-May 2022	Completion of all events
Coordination of completion of workshop report and dissemination	Michelle Barker	May-June 2022	Release of report

5. What will be the output from the project?

1. Travel funding for up to 15 workshop participants to the in-person meeting 19-22 April 2022 in the Netherlands
2. Coordination of online events March-May 2022, which will include public events

6. What is the justification for the amount of money requested?

1. \$30,500 is allocated for participant travel to attend the workshop. This is expected to cover flights/train, accommodation and meals for up to 15 participants, with Global South participants being the first priority for travel support.
2. The budget includes two staff with a combined total of \$12,000 over 5 months. Fringe

rates are included in their monthly base costs as these staff are contractors:

- ReSA Director: Responsible for project direction, steering committee coordination, design and development of workshop topics and content.
 - ReSA Community Manager: Responsible for in-person and online event organization and infrastructure, communications, and dissemination of materials to wider community.
3. \$7,500 is budgeted for finance and administration services provided by Code for Science & Society, ReSA's fiscal sponsor, who will receive and administer the grant.

7. What other sources of support does the proposer have in hand or has he/she applied for to support the project?

- Lorentz Center will provide approximately €25,000 in-kind to cover indirect expenses such as organizational costs, housing and common services.
- Ford Foundation expects to provide \$10,000 in January 2022.
- Chan Zuckerberg expects to provide \$25,000 in January 2022.

A conversation is also scheduled in January with Mozilla Foundation to seek additional funding to support this event, primarily for participant travel.

8. What is the status and output of current and/or previous Sloan grants?

ReSA completed its first Sloan Foundation grant (G-2021-14116) in August 2021, which enabled ReSA to provide project management to the FAIR for Research Software Working Group (FAIR4RS WG) on the development of community-endorsed FAIR (Findable, Accessible, Interoperable, Reusable) principles for research software. This project completed its two deliverables on time: an engagement plan; and a report summarizing a community-agreed definition of the FAIR principles for research software (Chue Hong et al., 2021b). A key metric of success for this project was engaging the research software community in drafting of the outputs, and the FAIR4RS WG successfully engaged 300+ people (from 110+ organizations in over 18+ countries), including the 215+ FAIR4RS WG members.

ReSA commenced a second grant in November 2021 to establish the Research Software Funders Forum as a collaboration of funding organizations committed to supporting research software, and those who develop it, as fundamental and vital to research. Work on this is well underway. A community manager has been recruited, Terms of Reference and a list of potential participants have been created, and the first meeting of the Funders Forum is scheduled for 17/18 January 2022.

Section 3. Budget

See section 2, point 6.

Section 4. Required Appendices

4A. List of Citations

- Barker, M. (2021). *ReSA People Roadmap Report*. Zenodo.
<https://doi.org/10.5281/ZENODO.5633318>
- Botvinik-Nezer, R., Holzmeister, F., Camerer, C. F., Dreber, A., Huber, J., Johannesson, M., Kirchler, M., Iwanir, R., Mumford, J. A., Adcock, R. A., Avesani, P., Baczkowski, B. M., Bajracharya, A., Bakst, L., Ball, S., Barilari, M., Bault, N., Beaton, D., Beitner, J., ... Schonberg, T. (2020). Variability in the analysis of a single neuroimaging dataset by many teams. *Nature*, 582(7810), 84–88. <https://doi.org/10/ggwrvt>
- Campbell, L. G., Mehtani, S., Dozier, M. E., & Rinehart, J. (2013). Gender-Heterogeneous Working Groups Produce Higher Quality Science. *PLoS ONE*, 8(10), e79147.
<https://doi.org/10.1371/journal.pone.0079147>
- Chue Hong, N., Cohen, J., & Jay, C. (2021a). *Understanding Equity, Diversity and Inclusion Challenges Within the Research Software Community*. https://doi.org/10.1007/978-3-030-77980-1_30
- Chue Hong, N. P., Katz, D. S., Barker, M., Lamprecht, A.-L., Martinez, C., Psomopoulos, F. E., Harrow, J., Castro, L. J., Gruenpeter, M., Martinez, P. A., & Honeyman, T. (2021b). FAIR Principles for Research Software (FAIR4RS Principles). *Research Data Alliance*.
<https://doi.org/10.15497/RDA00065>
- Dunbar-Hester, C. (2020). *Hacking Diversity: The Politics of Inclusion in Open Technology Cultures*. Princeton University Press.
- Hettrick, S. (2020). *How many RSEs?* SORSE workshop: What do we (not) know about RSE?
<https://slides.com/simonhettrick/how-many-rses/fullscreen#/6/3>
- Liang, T., Liu, C., Lin, T., & Lin, B. (2007). Effect of team diversity on software project performance. *Industrial Management & Data Systems*, 107(5), 636–653.
<https://doi.org/10.1108/02635570710750408>
- NumFOCUS. (2018). *DISCOVER Cookbook (Diverse & Inclusive Spaces and Conferences: Overall Vision and Essential Resources)*. <https://github.com/kariljordan/DISCOVER-Cookbook>
- Philippe, O. (2018). *What do we know about RSEs? Results from our international surveys*.
<https://www.software.ac.uk/blog/2018-03-12-what-do-we-know-about-rses-results-our-international-surveys>
- Ruhm, F. (2019). *Conference Accessibility Guidelines*. <https://zeroproject.org/wp-content/uploads/2019/12/Zero-Project-Conference-Accessibility-Guidelines-2019.pdf>
- Vasilescu, B., Posnett, D., Ray, B., van den Brand, M. G. J., Serebrenik, A., Devanbu, P., & Filkov, V. (2015). Gender and Tenure Diversity in GitHub Teams. *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems*, 3789–3798.
<https://doi.org/10.1145/2702123.2702549>

4B. Curricula Vitae

CVs are included for Dr Michelle Barker (ReSA Director) and Kimberley Hartley (ReSA Community Manager).

4C. Conflicts of Interest / Sources of Bias

There are no conflicts of interest. There is some potential for bias in the choice of participants, and the prioritization of those that receive travel funding. To overcome this, an open call process was utilized to identify the majority of the participants, and travel funding will prioritize participants in need of assistance in this order: 1) Global South participants 2) keynote speaker 3) workshop organizers 4) speakers from under-represented minorities 5) other attendees.

4D. Attention to Diversity

The workshop aims and content are focused on contributing to reducing gender and racial/ethnic inequities in RSE. The workshop aims to practise what it preaches, with workshop planning to frame DEI at its center from its inception. ReSA will work to ensure that the “Vive la différence” workshop incorporates best practice in DEI (NumFOCUS, 2018; Ruhm, 2019) with specific actions to include:

- Prioritizing involvement of participants from under-represented minorities and the Global South, including as speakers on the agenda. The 50 confirmed participants include 74% of participants from an underrepresented minority (including women) and 14% from countries in the Global South.
- Development of a hybrid program to maximize engagement for participants who do not travel to the in-person event.
- Facilitation of an inclusive environment through use of tools such as a Code of Conduct.
- Provision of workshop materials and outputs in an accessible manner.

The workshop steering committee brings a range of experience in working with DEI issues, as detailed in section 3.

4E. Information Products

- Articles and working papers:

- This proposal will share the final report publicly via blogs, white papers and/or articles. Blogs or white papers will be stored on Zenodo.
- Any resulting articles may be published in journals such as F1000Research, PLOS ONE, or possibly Nature or Science, and preprints will be made available under a CC-BY license.
- It is highly likely that a copy of any articles will be archived in an institutional repository, and subject to an institutional mandate, but is dependent on the policies of individual authors' institutions.

- Websites & Web Content:

- Project-related websites will be hosted and maintained by ReSA (www.researchsoft.org).
- These websites will be maintained for at least 12 months after the completion of the project. Their relevance will then be reviewed, as the project publications and

working papers will be publicly available elsewhere, as described above. If they are not going to be maintained then the websites could be archived with archive.org.

- ReSA will own the intellectual property of any web content on their websites, and it will be made available to others under a CC-BY license.

- Video:

- Final products will be stored on Youtube and made available to others under a CC-BY license, with copyright remaining with the creator. The creator will either be the person giving the talk or ReSA. Raw/unedited versions of the work will not be archived.

- Other types of outputs: No data sets, software, study guides, artistic work, etc., will be produced.

Section 5. Optional Appendices

Two optional appendices are included:

- A. Workshops, conferences, or other large meetings
- B. Letters of support

5A: Workshops, Conferences, or other Large Meetings

This appendix includes the following items:

1. Draft conference agenda
2. Draft list of conference invitees and speakers
3. Letter of invitation
4. Anti-harassment policy
5. Participant survey

A draft call for papers is not included as this is not applicable.