



## ESIIL Guidelines for Intellectual Contributions and Credit

ESIIL's guidelines for intellectual contributions and credit take a comprehensive and broad approach to contributorship, as per Allen et al. 2019 and the CRediT taxonomy (Brand et al. 2015). We advocate for contributions that adhere to the principles of open science while also respecting data sovereignty (Carroll et al. 2020). We urge all ESIIL participants to implement these guidelines in all our endorsed research and educational ventures. We acknowledge that different disciplines, sectors, and institutions may have unique approaches to contributions, credit, and authorship. However, we strongly advise teams to develop an agreement around contributions and credit, which should be regularly revisited and updated throughout the project. When in doubt, lean towards giving credit rather than withholding it.

### Guidelines:

1. Initiate early and ongoing conversations among teams about expectations and roles, acknowledging that these may change over time. Teams should document these discussions and formalize their decisions (e.g., such as through an [authorship agreement form](#) and [contributions table](#)).
2. Honor various forms of contribution, for example, the categories from the CRediT taxonomy: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, and Writing – review & editing (and there may be other forms of contribution not adequately addressed here);
3. Consider including author contributions in publications, even if it is not a requirement of the journal or other outlet;
4. Clarify how credit is attributed to early-career scientists, and ensure that mechanisms are in place to actively involve them in the contribution process;
5. Create leadership opportunities for, and promote the contributions of, members of all communities in work outputs;
6. Where appropriate, provide open access publication of products throughout the entire scientific process, including pre-prints (Hoy 2020) and for data, tools, code, models, educational materials, manuscripts, and other intellectual contributions;
7. Consider alternative author listings that provide better recognition of contributions, such as shared and indicated lead author roles, team author names for very large author groups, and/or tiered authorship based on efforts;
8. Consider open source licenses when publishing;
9. Explore ways to track success beyond traditional publication citations, for example, altmetrics that capture attention and engagement on digital platforms, patents and inventions, or policy impact, among others.

These guidelines on intellectual contribution and credit are intended to create a safe intellectual space for idea exchange, acknowledgment of individual contributions, and facilitation of large-scale collaborations.

If ESIIL-supported teams require assistance or facilitation in discussions about intellectual credit and authorship, they are encouraged to contact ESIIL's Director, Jennifer Balch

(jennifer.balch@colorado.edu), or ESIL's Access and Cultural Innovation Lead, Susan Sullivan (susan.sullivan@colorado.edu). Please also see ESIL's Code of Conduct for additional resources on research integrity and ethics. In scenarios where the intellectual property of individuals or organizations needs to be explicitly defined and agreed upon, teams should also reach out to Jennifer Balch for additional support.

#### **References:**

Allen, L., A. O'Connell, and V. Kiermer. 2019. How can we ensure visibility and diversity in research contributions? How the Contributor Role Taxonomy (CRediT) is helping the shift from authorship to contributorship. *Learned Publishing* 32:71–74.

Brand, A., L. Allen, M. Altman, M. Hlava, and J. Scott. 2015. Beyond authorship: attribution, contribution, collaboration, and credit. *Learned Publishing* 28:151–155.

Carroll, S. R., I. Garba, O. L. Figueroa-Rodríguez, J. Holbrook, R. Lovett, S. Materechera, M. Parsons, K. Raseroka, D. Rodriguez-Lonebear, R. Rowe, R. Sara, J. D. Walker, J. Anderson, and M. Hudson. 2020. The CARE Principles for Indigenous data governance. *Data Science Journal* 19:43.

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