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Enhancing research culture through fair attribution for technicians

Biological Sciences Open Research Briefing

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Hello everyone, and thank you for coming to this Open Research Briefing on how fair attribution for technicians can enhance research culture. [introduce ourselves]

Session structure

Format	Interaction	Follow up
• Presentation (recorded) • Activities and discussion • Q&A • Hybrid session	• Questions and case studies via Menti.com	• We are happy to share all our slides and be contacted after the session

Context

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Technicians and their role in enhancing research culture

- Technicians make research happen – and play an important role in creating positive research cultures
- Technicians = those with skills or specialized knowledge in a technical field, usually working within a research or higher education setting
- However, technicians are an underserved community and often lack acknowledgement for their vital role.

Words technical staff use to describe the research culture where they work.
Source: Survey of UK Technical Staff 2021: Which three words would you use to describe the current research culture where you work, based on your experience as a technician/ technical role-holder? n=1766. (Harris and Vere, 2022)

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Before we get into the detail of this project, we thought it would be useful to provide some context. Hopefully everyone here will agree that technicians make research happen. The science that happens in this university would not be possible without the people with very specialised knowledge, technical expertise and who carry out the important work that enables research to happen! These are people who might not have 'technician' in their job title, and can be working in a whole spectrum of roles, from lab management, bioinformatics, project management, sequencing, microscopy, fly facility, animal husbandry, proteomics etc etc.

These ‘research enablers’ inevitably also play a really key role in creating positive research cultures in teams, faculties and departments across the University. The word cloud on the screen is taken from a report on research culture through a technician lense – there are lots of positive words on there like inclusive, collaborative, friendly, interesting, supportive – but also a few which indicate that there is still work to be done! ‘Undervalued’ stands out, and I think more generally technicians are an underserved community when it comes to training opportunities, and acknowledgement for their work.

The story so far

- Founding signatory to the Technician Commitment - to improve technician visibility, recognition, career development and the future sustainability of technical skills.
- Technician Commitment Coordinator and 2024-7 Action Plan
- Fair Attribution Guidelines for the University
- Increasing endorsement of technicians' contributions in the sector:
  - REF Paper and 'People, Culture and Environment'
  - Funders encouraging grant applications by and including technicians

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To address this, the Technician Commitment was set up and the University was a founding signatory in 2017. The commitment is designed to improve technician visibility, recognition, career development and the future sustainability of technical skills.

As part of the University's commitment, we have a Technician Commitment Coordinator, John Nicolson, who we've been working with for 2 years in particular to try and address the problem of a lacking standard practice for crediting the role of technicians in research outputs. The University has an Action Plan which includes a target to implement a set of Fair Attribution Guidelines. John has drafted a document using the universities of Leeds, Southampton as a template, and we hope they will work their way through the university's governance structures soon!

We think this will become increasingly important for the University as the higher education sector increasingly recognises technicians as a vital part of the research process. REF 2029 will emphasise team research through an increased 25% focus on 'People, Culture and Environment' part of the submission. There will be less focus on the ourputs themselves, and more on the

environment and culture in which research happens. We are also seeing funders like UKRI and in particular BBSRC encouraging technicians to apply for grants themselves, and for PIs to include technicians in their grant proposals. There is actually some data from BBSRC Alert funding which indicates higher rates of success for grant proposals which include RTPs (56% rather than 46%), and even higher when the grant is RTP-led (70%). Therefore, technicians are inevitably going to be more involved in the outputs of research from these grants, and may even be publishing themselves.

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Our work to improve credit for technicians speaks to a range of aspects of research culture.

I think at its most basic, this can be seen in terms of mutual respect between academic and assistant staff, whilst also recognising that there is a strong degree of permeability between these two staff groups nowadays. Technicians might start a PhD, a postdoc might move into a more technical or lab/ project management role etc.

It is also about securing recognition for technicians' expertise and contributions to research outputs and promoting opportunities for their professional development through involvement in publishing and understanding of scholarly communications processes.

In the research outputs themselves, fair credit for everyone involved in the research is also a matter of research integrity, ensuring transparency and accuracy of methods and acknowledging everyone needed to make the research happen, and open research systems, tools and outputs are important for enabling more equitable attribution practices.

2 Workshops for technicians

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What the workshop covers

- UK HE context and the publication process
- Signing up for an ORCID
- CRediT taxonomy and discussion of authorship vs acknowledgement
- Discussion tasks to allow technicians to share their experiences of attribution
- Tips for having conversations about fair attribution

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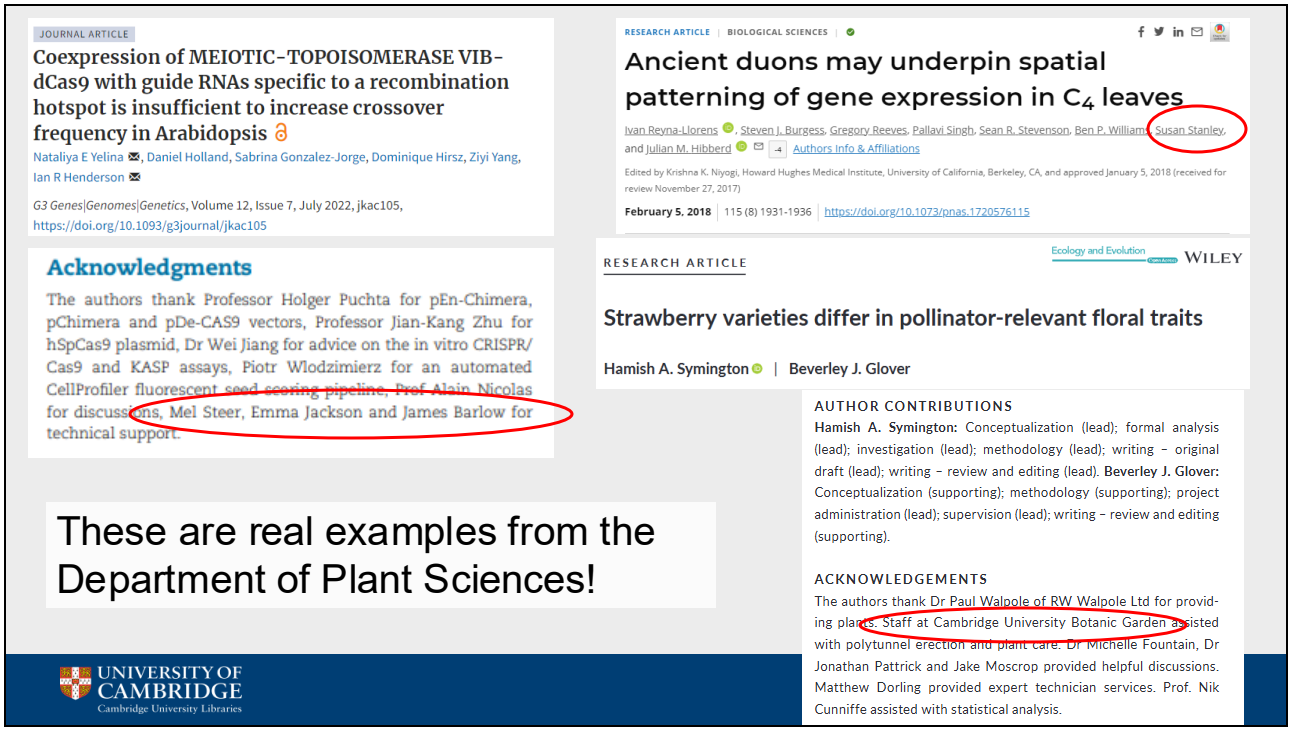
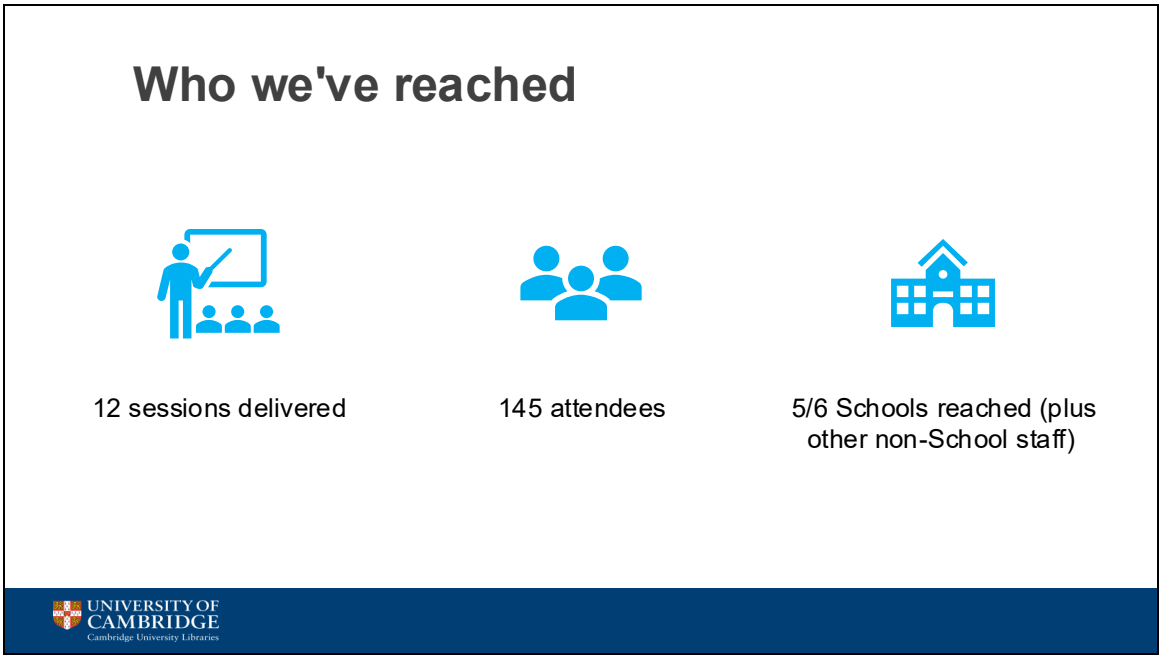
Frankie and I have designed a 90 minute workshop for technicians which we are currently delivering once per term in different locations around the University. The workshop starts by introducing technicians to the basics of the UK HE sector, including the pressure to publish and the influence of the REF. It then moves on to discuss how the publication process works and we touch on open access. Then we explain what an ORCID is and why it is used, before a live demonstration of how to sign up, encouraging the participants to follow along. We then discuss the differences between acknowledgement and authorship, followed by a group discussion of the participants' experiences of authorship and attribution. After feeding back from the discussion, we introduce the CRediT taxonomy to show the expanding definition of authorship, finishing with some tips on how to have conversations about these topics with their PIs or line managers.

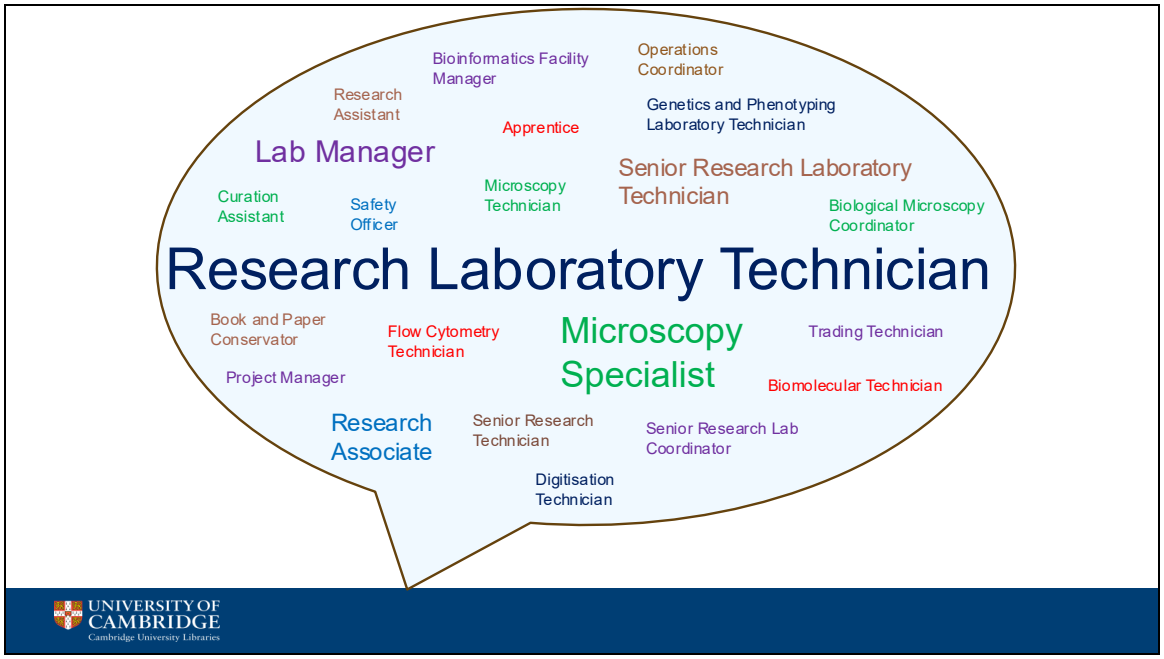


Here are some examples we use with the technicians. We talk about how fair attribution for the work you have done will usually either take the form of an acknowledgement in a research article, like you can see in the example on the left where Mel, Emma and James are acknowledged/ thanked for their technical support. Or you might be listed as a co-author, as Sue has been in this publication on the right. Or individuals may not be named, but it could be the core research facility or acknowledgement of a collection, for instance here 'Staff at Cambridge University Botanic Garden' are thanked, Matt Dorling by name.



Over the last 14 months we have delivered the session 11 times to a variety of participants, with over 130 attendees overall. We've managed to reach 5 out of the 6 Schools within Cambridge, only missing Arts and Humanities. Understandably, Biological Sciences have been the biggest audience, closely followed by Clinical Medicine, but we've also had interest from Social Sciences and even from technicians based in the University Library. This indicates that the session has a wide appeal for technicians across the University.

We now run a mixture of sessions open to all through the CUL Research Skills Programme, and more tailored sessions for specific departments or institutes. For example, we have delivered sessions for technical staff at CRUK, the IMS, the Crop Science Centre and for CUL staff. The session for library staff has prompted further conversations with senior leadership about how to put fair attribution into action within libraries, and I was recently asked to include information about fair attribution in a completely separate Open Access session I was running at CRUK, indicating that the message has been well-received there too.



Another thing we were interested in looking at was the job titles of people who attended our sessions. Technicians, like librarians, have widely varying roles depending on the area they work in. As part of the advertising for the session, we stressed that you didn't have to have the word 'technician' in your job title in order to come along, as we were interested in the experience of anyone who identified as a technician. So, while you can see that the most common job title of our attendees was 'Research Laboratory Technician', other common titles included 'Microscopy Specialist' and 'Lab Manager'. And we had a good range of grades represented as well, from 'Biological Microscopy Coordinator' all the way down to 'Apprentice'! There are also some job titles you might not traditionally associate with the word 'technician', such as 'Project Manager', 'Curation Assistant' and 'Book and Paper Conservator'.

Reflecting on the results

"[I have had] no acknowledgement or recognition for the generation of data that has been presented at i nternational conferences and in high impact papers"

"[My experience is] positive; the professor is supportive and encourages co-authorship"

"[When I asked why I was] missed from the author list [the reply was] 'oops we forgot, sorry'"

"As a facility manager, [I have co-authored] more publications than as a postdoc"

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We think the workshops have been successful, and everyone who filled out a feedback form said they would recommend the session. Some noted that the opportunity to network with other technicians was valuable and for this reason, the workshops worked best in person. Participants seized the chance to share their experiences so we needed to extend the timings from 1 hour to 90 minutes!

From these quotes, it is clear that lots of technicians are being acknowledged and given authorship, but there is no consistency of approach. Some participants shared their frustration at the lack of recognition for their work, the dismissive response if they raised the issue, and others noted that technicians often don't know even if they are recognised in a publication. On the other hand, the majority of participants did say they had experience of acknowledgement or attribution and some reported a supportive, positive experience.

It was particularly interesting to note the difference between lab

technicians who are integrated in a research group compared to Core Facilities staff who run services for eg microscopy and proteomics. Many of these Core Facilities do have a policy or service agreement in place for acknowledging the Facility and individual staff members, but they have no oversight of whether this happens in practice or methods for following it up if it doesn't.

Reflecting on the results

"Involvement in publications greatly depends on the people we are working with – some are more receptive and keen to involve technical staff in the conversation about the research"

Overall lack of consistency means there is a need for University-wide fair attribution guidelines.

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Overall, this participant quote sums it up: "Involvement in publications greatly depends on the people we are working with – some are more receptive and keen to involve technical staff in the conversation about the research".

We think it is clear that there is a need for some University-level guidelines, similar to those already in place at other institutions including Liverpool and Southampton. Engaging directly with technicians for this work has also highlighted the need to develop a more equitable systems-approach to track contributions of everyone involved in research, not just those on academic contracts, especially as this data may be needed for the REF and other activities such as grant applications and justification for technical posts and equipment.

3 Enhancing Research Culture project

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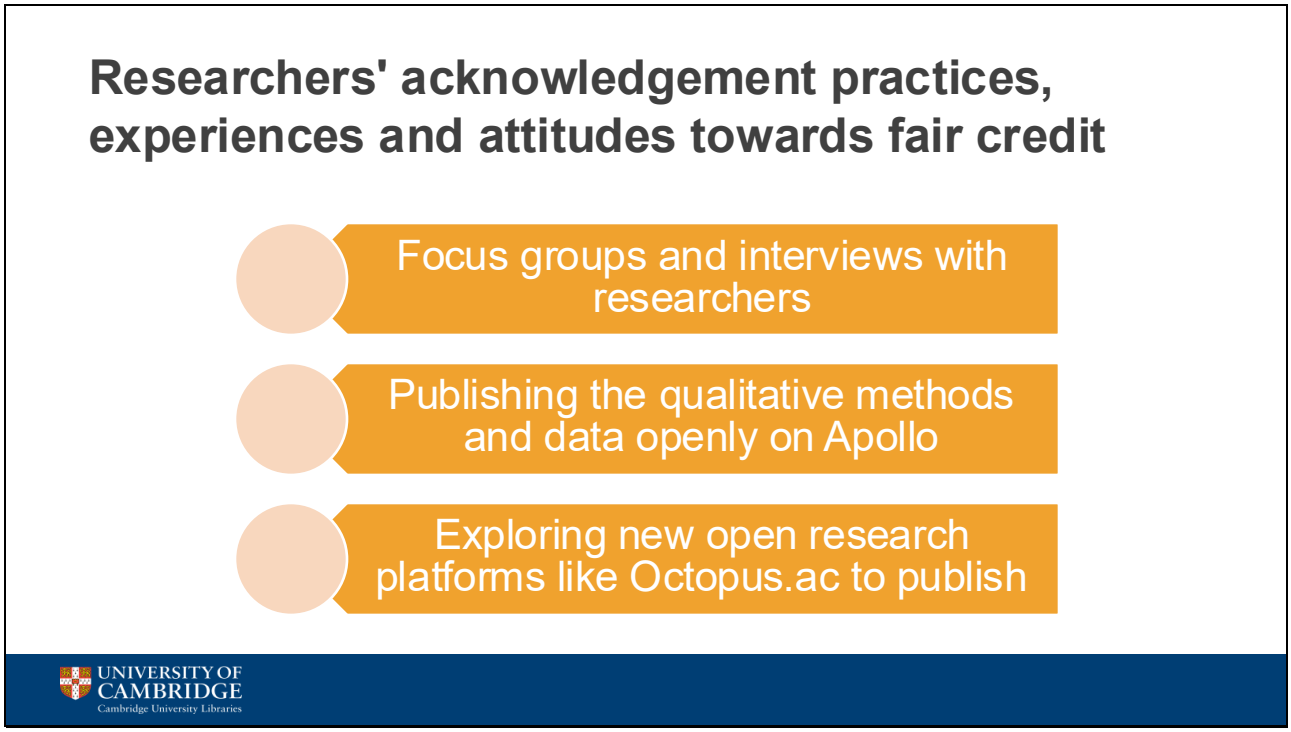
We hope to continue running these workshops, and the feedback and results indicate that this is a topic that isn't going away.

One of the recurring themes that comes up in the interactive part of our workshop is technicians saying ‘it’s all well and good you talking to us about this – now we feel more knowledgeable and empowered, but there’s still power structures and hierarchies which mean that you really need to be talking to academics about this too!’ So that’s what we’re trying to do next!



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We are currently carrying out qualitative research with researchers to better understand their experiences and opinions on fair attribution for technicians.

We want to explore their authorship and acknowledgement practices and understand their attitudes towards fair attribution for technicians.

How far do academic researchers support fair attribution for technicians?

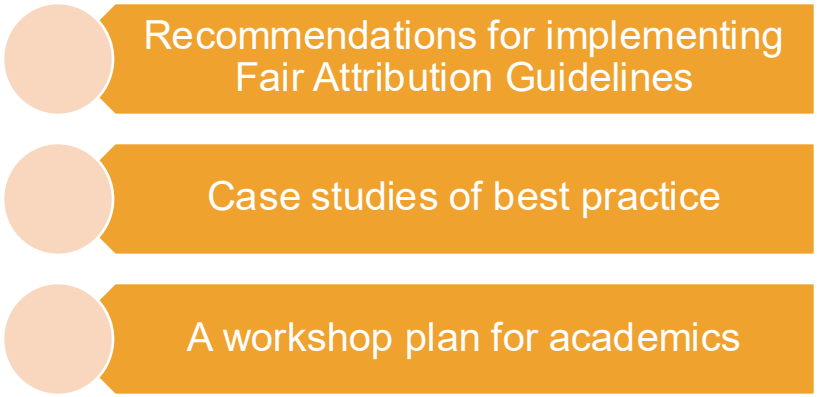
What factors influence their attitudes and practices for crediting technicians and are there any perceived barriers?

We also want to think about enablers, and understanding the best way to make steps to change the research cultures of crediting technicians. So we'd like to explore academics' perspectives on tools like the the CRediT taxonomy as well institutional policies or other sector/ discipline-specific guidelines for encouraging fair attribution practices.

We're also thinking about other ways to explore research culture by incorporating open research methods into the project. Most participants have consented to sharing the anonymized transcripts of our focus groups and interviews under a CC BY license on Apollo, and we're planning to share some research

publications on Octopus.ac as well.

Intended outputs



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Moreover, in many ways, this is an action research project – we want to carry out this research to understand what strategies would be most appropriate for promoting the uptake of Fair Attribution Guidelines, and be able to create some more tools that are based on the evidence we uncover in the qualitative research.

At the moment, we are hoping to produce a set of recommendations that we can share with the Technician Commitment team, but we are also planning to use the data we gather to create some case studies for a campaign whereby researchers can tell their stories and best practices on a peer-to-peer level. We're then hoping that what we learn can be incorporated into a new workshop for academic staff, equivalent to the one we've been running with technicians.

4 Tools and guidelines

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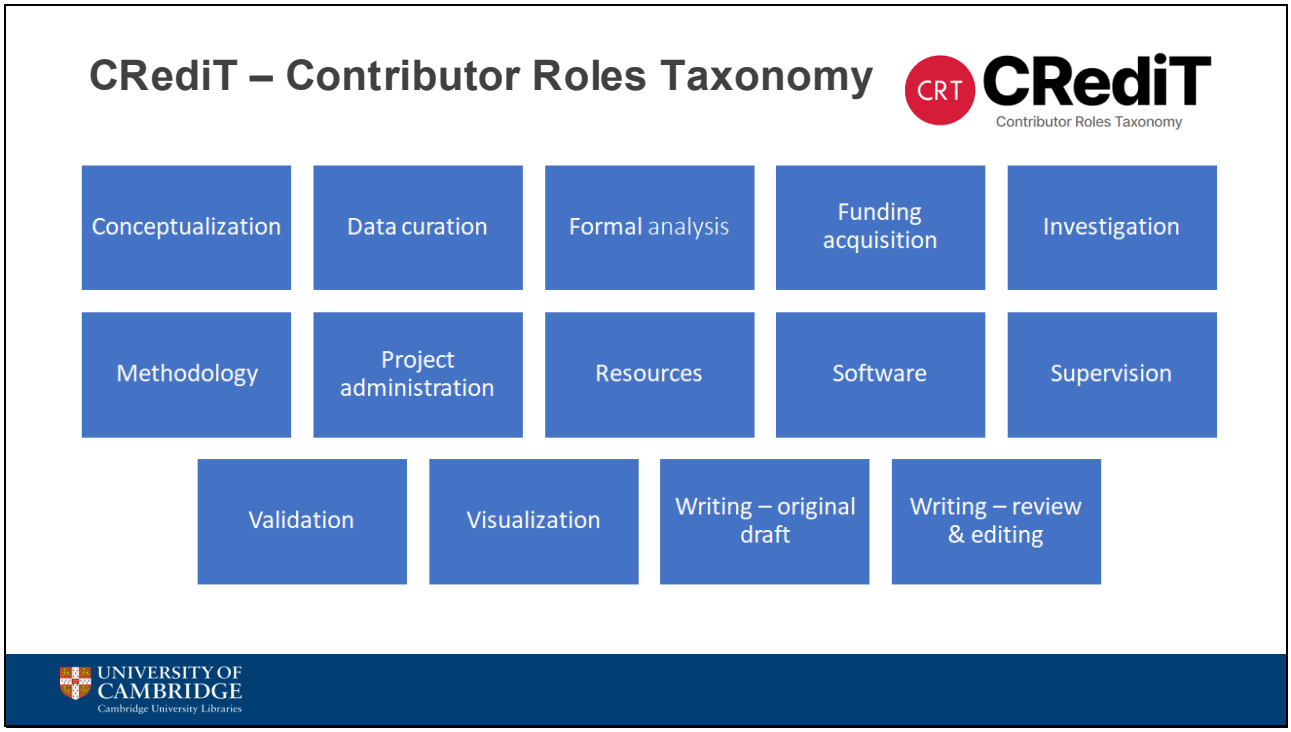
One of the things we want to do with the research project is bring academics' attention to tools that already exist that can help when thinking about fair attribution and authorship in general.



One of the tools that has started to be adopted by publishers and institutions is the CRediT taxonomy. The taxonomy was devised during a workshop held between Wellcome Trust and Harvard University in 2012, and has been in widespread use since 2015. Initially it aimed to more accurately capture the range of contributions researchers can make to an output, but by doing so has demonstrated that the definition of 'authorship' should perhaps be wider than the traditional writing-based role.

CRediT enables all contributions to be listed, even those listed in the acknowledgements. It's possible to assign multiple roles to an individual contributor, and a given role can be assigned to multiple contributors. CRediT also enables the degree of contribution to be specified – ie where multiple people serve in the same role, they can be specified as ‘lead’, ‘equal’, or ‘supporting’. The recommendation is that the corresponding author should take responsibility for assigning roles, but all contributors should be given the opportunity to review and confirm their assigned role. Many researchers we've spoken to about CRediT have found it useful in visualising the types of roles that can exist in research, and beginning more open and

transparent conversations about authorship within their teams.

Fair attribution guidelines

- Several institutions already have these guidelines (Liverpool, Southampton, Leeds, York, Durham)
- Aim to make crediting practices consistent across the institution and recognise that research is not possible without technical expertise
- Drafted by the Technician Commitment Lead using policies from other institutions
- Would work in tandem with existing Authorship Guidelines

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One of the other tools we can use to ensure appropriate credit is given to our technician colleagues is Fair Attribution Guidelines. Several institutions across the UK already have these in place and the Technician Commitment Lead has put together some draft guidelines from these existing policies which are currently making their way through the University's governance procedures. The aim of Fair Attribution Guidelines is to make crediting practices consistent across the institution, as well as recognising that the vast majority of research cannot happen without technical expertise. These guidelines would work in tandem with the existing Authorship Guidelines, which are also due to be updated, ensuring that everyone has the same expectations when it comes to fair attribution.

There are five distinct cases in which facilities and services are used*:

1. User led experiments within the University, with initial training by technicians.
2. Technician support in experimental design and/or data acquisition and/or data interpretation and analysis.
3. Collaboration with external users in which technicians support experimental design and/or data acquisition, and/or data interpretation.
4. Occasional use, to obtain data for a simple experiment, where technicians perform routine characterisation, sending data to the user to analyse.
5. The preparation of items or materials used during experiments.

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These are the five use cases that have been identified in the current Fair Attribution Guidelines for Cambridge. The cases cover both authorship and acknowledgement. Hopefully you can see where technical colleagues you work with might fit into these categories – and if you can think of any examples that don't fall into one of these categories, let us know! The guidelines are still very much in draft form and inviting feedback.

5 Where next?

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What you can do

Talk to your technicians and find out how they feel about fair attribution

Have open conversations about authorship at the start of any project (or any new contribution)

Adopt and use Fair Attribution Guidelines where possible

Find out more

- Technician Commitment
- Cambridge Technician Development website
- Cambridge Technician Commitment Action Plan 2024-2027
- Our Enhancing Research Culture project page
- 'Fair attribution and publishing for technicians' workshop slides (available under a CC-BY licence)
- CRediT taxonomy

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Questions?

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