"Fairer research assessment practices at EMBL" Workshop Report

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Summary

EMBL supports fair and responsible research assessment practices, which include its recruitment and performance assessment processes. As part of this commitment, EMBL became a signatory of DORA in 2018, and convened a DORA Working Group in 2020 to further strengthen EMBL's commitment to research assessment reform. The DORA Working Group at EMBL held a workshop to develop guidance for writing CVs aligned with DORA recommendations that are specific to EMBL's specific needs as a research-performing research infrastructure and training organisation. Using instructions developed and shared by other institutes as a starting point, the workshop focused on developing instructions for including diverse research outputs in a CV, and a brief narrative summarising their impact and importance. The outputs of the workshop have led to EMBL-specific CV instructions that are used for EMBL job applications, promotions, research reviews, and awards processes.

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Background

The European Molecular Biology Laboratory (EMBL) is an intergovernmental life sciences research organisation operating at six sites across five locations in Europe. As Europe's only intergovernmental organisation for life science research, EMBL believes it has a responsibility to be a leader and innovator in the way research in molecular biology is performed and assessed. Since 2019, EMBL has led a drive to modernise the way it carries out research and operates as an organisation, and to codify good practices. As part of this drive, EMBL aims to translate existing good practices in research assessment into coherent, concrete, and aspirational policies.

EMBL presents a unique working environment, both operationally as it encompasses 6 sites in 5 different countries, and scientifically since its missions include research, the provision of services, and training. The functioning of the organisation differs radically from that of a university, since it does not involve the teaching of undergraduate students and employees stay for a maximum of nine years. Moreover, EMBL encompasses unique scientific services, including the EMBL-EBI Data Resources. The recruitment of EMBL staff therefore requires instructions that can be applicable to candidates from a wide variety of STEM backgrounds, including software developers, engineering, experimental research, and bioinformatics, as well as biologists, medics, chemists, ecologists and more.

The San Francisco Declaration on Research Assessment (DORA) was developed in 2012 with the goal to improve the ways in which the output of scientific research is evaluated by funding agencies, academic institutions, and other parties. EMBL became a signatory of DORA in 2018, and convened a DORA Working Group in 2020 to further strengthen EMBL's commitment to research assessment reform[1]. The DORA Working Group is composed of staff members in diverse roles from across the organisation.

The Working Group began by identifying research assessment "hotspots", or areas within the organisation where research assessment takes place. These included recruitment of scientists (including trainee positions, faculty, and staff data resource roles), internal research quality assessment (including unit reviews, internal promotions), prizes and awards processes, and EMBL's research assessment culture.

[1] DORA Case Study: The European Molecular Biology Laboratory
https://sfdora.org/case-study/the-european-molecular-biology-laboratory/

The Working Group subsequently developed 4 key Research Assessment Recommendations:

1. Clearly state EMBL's commitment to the principles of DORA
2. Update the type of research outputs requested of candidates
3. Provide guidance to internal and external decision-making committees
4. Communicate EMBL's Research Assessment practices

When considering the implementation of these Recommendations, some actions were proved relatively straightforward: however others were more complex, in particular recommendation 2 ("Update the type of research outputs requested of candidates"). The Working Group therefore decided to hold a workshop to engage staff at different career stages to contribute to the implementation of this recommendation.

Aims of the workshop

The "Fairer research assessment practices at EMBL" workshop was held to develop EMBL-specific instructions for including diverse research outputs in a CV, and a brief narrative summarising their impact and importance. The workshop's goal was to include in the development process members of EMBL staff from across sites and scientific fields. Concretely, the workshop aimed to understand requirements for CV instructions on how to present research outputs for applicants to pre-doc, post-doc, and staff positions, and for EMBL staff members applying for promotion or submitting materials for governance processes such as quadrennial reviews by the Scientific Advisory Committee, or award nominations.

The Working Group identified CV instructions that had been developed by other research institutions and funders as part of their initiatives to improve research assessment (see Appendix)[2], to use as a starting point to develop instructions that would work for EMBL's unique context. The workshop focused on:

- Getting feedback on the language used to describe the types of research outputs candidates can include in their CV
- Developing instructions for including within a CV a brief narrative summarising the impact and importance of research outputs.

[2] Including the Royal Society Resume for Researchers, the Fonds Nationale de la Recherche de Luxembourg Narrative CVs for Researchers , and the Dutch research Council (NWO)

Participants and structure

The workshop took place on Friday 8th March 2022. 15 EMBL participants took part, from a variety of professional backgrounds and career stages, including group and team leaders, postdocs, predocs, a bioinformatician, and an engineer.

Three examples of instructions[2] were selected by the Working Group prior to the workshop and modified to only include text relevant to listing research outputs and producing a narrative describing their impact (see Appendix). Participants were asked to examine the example instructions ahead of the workshop.

During the workshop, participants were divided into smaller groups to prepare a draft narrative summarising the impact of their own research outputs using one set of example instructions. The pros and cons of each set of instructions was then discussed first in the small groups, and then in a larger session.

Workshop feedback

The feedback from the workshop participants can be classed in 4 broad themes: Instruction Style, Research Outputs, Narrative Content, and Implementation.

1. **Instruction style:**
    - Instructions should be clear and concise, and specify where within the CV the narrative should be included.
    - Complex wording or lots of guidelines should be avoided.
    - The tone of instructions should aim to be welcoming rather than forbidding (e.g. avoiding the use of words such as “claim” and “must”).

2. **Research Outputs:**
    - Instructions should include examples of what types of research outputs could be mentioned aside from publications. The types of outputs specified can include data sets, databases, code, software, pre-prints, patents, commercial products, instruments, clinical practice developments, educational products, and policy publications. Items including conference reports and proceedings were identified as less relevant for researchers in the STEM fields represented at EMBL.
    - It should also be clear whether “traditional” research outputs (i.e. publications) should be listed with or separately from other research outputs.

- People from different scientific backgrounds should be considered when writing instructions: different fields of study have different expectations for the number and types of research outputs expected at each career stage. For instance, junior researchers applying for postdoctoral positions may have fewer research outputs they wish to share when compared to established group leaders. Specifying the number of research outputs that should be included in a narrative CV can therefore sometimes be off-putting and should be avoided. Instead, instructions should just mandate the narrative length. Workshop participants deemed that a length of 300 words would be suitable (this also took into account the amount of time taken by workshop participants to write a draft paragraph).

3. **Narrative content:**
   - Instructions that encourage applicants to think about the broad impact of their research are highly encouraged, as are those that encourage applicants to connect their work into a cohesive "narrative".
   - The instructions should make it clear how the narrative should be different from a cover letter, as some felt there was a risk of overlap.
   - Stating that people should avoid H-indexes is helpful to clarify what is required.
   - Instructions to not mention the specific outputs in the narrative should be avoided as it is confusing. Instead, asking applicants to refer to persistent identifiers (such as a DOI) in the narrative would help readers follow the content.

4. **Implementation:** Guidelines for evaluating a CV should be produced alongside guidelines for writing a CV, so that the value of different research outputs is adequately captured during the assessment process by reviewers.

Workshop Outputs

Drawing from the feedback in the workshop, the EMBL DORA Working Group drafted a new CV instruction to be used for recruitments, performance assessments, and awards processes at EMBL as follows:

> *EMBL supports fair and responsible research assessment, which includes its recruitment and performance assessment processes. We recognize a range of research outputs, discourage inappropriate use of proxies such as journal impact factors, and value research outputs based on their intrinsic merit. EMBL is a signatory of the San Francisco Declaration on Research Assessment (DORA).*
>
> *As well as listing publications, research outputs can include open data sets, databases, code, software, pre-prints, patents, commercial products, instruments, clinical practice developments, educational products, policy publications, and any other relevant outputs to which you have contributed.*
>
> *At the beginning of your list of research outputs, please also include a brief narrative (max. 300 words) summarising the impact and importance of the main research outputs (citing outputs by a persistent identifier if available). Please explain your role in contributing to the generation of new ideas and hypotheses and which key skills you have used. You can also highlight how you have communicated your ideas and research results (written and verbally), as well as any related prizes or awards you have received. Please avoid mention of impact factors or H indexes. You may consider a broad range of impact measures directly related to the research output item, including qualitative indicators of research impact such as influence on policy and practice.*

In line with the workshop recommendations, the Working Group also produced instructions for EMBL reviewers and assessors to highlight the need to consider all research outputs and not use impact factors.

Conclusion

While implementing fairer research assessment practices at EMBL, we found the published work on CV instructions from other Institutes an invaluable reference and starting point. We believe that as we encourage and require improved research assessment practices within EMBL, it is critical to engage representatives from across the organisation to consider where changes are needed and to ensure guidelines are honed to the specific needs of our institute. We hope that sharing our Workshop structure and outcomes will help others in the future.

Appendix: Analysed CV instructions

The following instructions were adapted from others that have been produced by other research institutions and funders who were developing instructions for CV that enable more responsible research assessment in line with DORA recommendations. Since the EMBL Research Assessment Working Group focused on developing instructions for which research outputs to include and to write a narrative describing their impact, the example instructions below have been edited to reflect only this specific guidance, even though more extensive instructions for producing full narrative CVs may have been part of the original document.

Instructions A

Adapted from the Royal Society Resume for Researchers

How have you contributed to the generation of knowledge?

This section can be used to explain how you have contributed to the generation of new ideas and hypotheses and which key skills you have used to develop ideas and test hypotheses. It can be used to highlight how you have communicated on your ideas and research results, both written and verbally, the funding you have won and any awards that you have received. It can include a small selection of outputs, with a description of why they are of particular relevance and why they are considered in the context of knowledge generation. Outputs can include open data sets, software, publications, commercial, entrepreneurial or industrial products, clinical practice developments, educational products, policy publications, evidence synthesis pieces and conference publications that you have generated. Where outputs have a DOI please only include this. The limit is 300 words.

Instructions B

Adapted from the Fonds Nationale de la Recherche de Luxembourg Narrative CVs for Researchers

List and describe your key output that demonstrates both your experience relevant to your proposal, as well as relevant to supporting the research community at large. This output should be appropriate to your career stage, and should reflect what you consider most important to provide context for the evaluation of the submitted proposal. Your achievements described here can be from a wide range of sources based upon what you have achieved in your professional life thus far and should be described with enough detail that allows an evaluator to understand its importance.

Please note that the aim of this section is to highlight outputs and achievements that provide relevant context for reviewers and panel members, above and beyond your publication record. You should avoid listing and describing solely items from your publication record and provide substantive evidence to back up your claims (if possible).

Please provide a description (with evidence if possible) of your output, contributions, and achievements, related to the following areas:

Contributing to the generation and communication of new ideas, hypotheses, tools, or knowledge – explaining how you have contributed to generating new ideas and hypotheses, as well as key skills you have used to develop ideas and test hypotheses. This encompasses how you have communicated your ideas and research results (written and verbally), as well as funding and awards that you have received.

Relevant scientific outputs can be highlighted with a description of why they are relevant and considered in this context. Outputs can include datasets, software, publications, commercial/entrepreneurial/industrial products, educational products, clinical practice developments, policy publications, and other similar items. If an output has a DOI please only include this. Scientific outputs should be examples of rigorous science following high standards, that are reproducible, and others can build upon.

Please indicate to what extent these outputs have been made openly available to the research community and to potential users of research outputs

Instructions C

Adapted from the Dutch research Council (NWO)

- Provide the references to your key output (max. 10) and a motivation for the selection of each of these output items. The motivation may not include other publications by the applicant.
- Min. 400 words - max. 700 words, excl. output titles and references to the output
- Do not mention H-indexes, impact factors, or any type of metric that refers to journal/publisher-impact; the scientific content of a paper is much more important than publication metrics or the identity of the journal in which it was published. You may consider a broad range of impact measures directly related to the output item, including qualitative indicators of research impact, such as influence on policy and practice. You are encouraged to provide context for each motivation to support the assessment.

The maximum amount of output items is ten. Note that this does not mean that you are required to mention ten items. What is customary in numbers and types of output varies greatly between disciplines. EMBL will assess each candidate's selection of output in light of the culture and customs of the scientific field and in light of the candidate's effective research time. You are encouraged to include relevant information on the culture and customs of the scientific field in your narrative.

Motivate your selection of key output. You may shortly describe the research, its impact and your individual contribution to the research/output. You are encouraged to explain, in your own words, why a particular output item is directly relevant to your academic profile and/or important to your scientific field and/or to other fields in or beyond science and/or to the research idea.

Output may include, but is not limited to refereed articles, non-refereed articles, letters (to editors), books, book chapters, pre-prints, patents, working papers, proceedings, conference reports, software, code and open access databases. You may mention all types of output that occur in your field. The status of your output must be clearly indicated.

For journal publications, book publications, and where possible all other output, provide the following information: the author(s) in the order as published, date, title of the publication, journal or series in which the publication appeared, volume, page numbers, and (if applicable) publisher and place. Do not use “et al.”, so committee members and referees can see your position in the author list.