Open Science Needs No Martyrs, but We Must Recognize the Need for Reform

My perspective is primarily that of a researcher. I am an associate professor, I do research. I run a small research group, but I also do some policy work for the Initiative for Science in Europe\(^1\). One could say the title of my talk is a little bit provocative. It comes from a recent interview I gave for the ERC magazine\(^2\). As long as the incentives in science are not aligned with the robustness, transparency and reproducibility of science, doing that kind of work actually is not a career benefit. Each individual is in a very competitive system. The numbers vary from country to country and field to field, but let us say 10\% of PhDs ever get a permanent position. It is a very tough competition and I think everybody who manages to succeed in that system knows how to play by the system’s rules, and so we should not expect individuals to put their own self-interest completely aside and martyr themselves, and in the worst case not have a career. Instead, we have to change the assessment system so that people’s self-interests and the interests of science align much better than they do now.

We have already heard a lot about what open science is and why we want to have it. The UNESCO statement\(^3\) is a very important milestone on this. My focus as a researcher is on its open scientific knowledge part, and one should note that this is about a diversity of practices, not just publication, but data, code, methods and so forth. All these things serve to make scientific dissemination and scientific knowledge much more robust and reusable. Accordingly, there have been a lot of aspirations and policy statements. In particular, the European Commission has been very actively promoting open science in its funding programmes.

For many years we have had very strong-worded statements saying that open science must be embedded in every level of the scientific endeavour and all stakeholders must take responsibility for this. This is all well and good, but the fact is that researchers still get hired and promoted to a large extent on the names of the journals where they publish. I have personal experience with hiring processes at four
different European universities in the last five years and not even one would have
rewarded me for doing open science. Instead, journal impact metrics and the num-
ber of publications were explicitly mentioned. I managed to succeed in that system.
I have also managed to support open access and open data, but it has always been
a balancing act between that and playing the career game successfully.

There are signs that this is slowly changing. For example, the European University
Association said that in 34% of European institutions there were no open science elements,
which means at least in the rest there were some elements. I am sur-
prised that it is even that high because, as I said, my personal experience is that
journal prestige is still very much the career currency. This is a systemic problem,
and the problem is that governments distribute public funding based on rankings
and aggregated indices to the research institutes and universities, and that of
course drives the strategy of these institutions because they want to receive fun-
ding and they do need it. Then those research institutions use metrics like journal
impact factor, quartile ranks and h-indices to do their hiring and promotions, and
thus these metrics flow all the way down to the individual researchers to drive
recruitment and promotion.

It is a very easy to use and globalising system in some sense, but it has several
serious flaws that DORA and others have highlighted for a long time. From my
personal perspective, and I think DORA also recognised this, the most pernicious
problem is the misuse of these journal-based impact metrics and the prestige
that they signal to individual researchers. I should clarify here. For the individual,
this is not irrational. If I have a prestigious publiction that really is valuable to
me in my career, it is not just an illusory thing. It is a very rational choice to chase
those types of publications. That is what needs to change for the whole system
to be able to change.

It is a difficult problem for researchers, especially early-career researchers.
Many of us have some level of idealistic thinking. We want to do open data,
open methods and software, try different things and collaborate a lot, but we are
still hired and promoted based on how fast and how prestigiously we publish. Of
course, having incentives so badly misaligned with aspirations is bound to not
give us the results that we would want for the science system as a whole. That
is why we really need to reform research assessment and change the evaluation
culture that comes with that.

I have been working on science policy issues in recent years, especially at the
Young Academy of Europe. We collaborated with other researcher organisations,
namely Eurodoc⁴ and the Marie Curie Alumni Association⁷. Early last year we published an opinion piece⁸, which got quite a lot of attention, where we highlighted this problem that we are locked into this system if we want to have a career. I pointed out that even if I have tenure now, I have trainees, post-doc and PhD students. I must worry about their careers, I cannot make my idealistic choices and have their careers suffer consequently. In this opinion piece we tried to think of ways in which the system could be changed. The very first thing we all need to do is we need to be very realistic and honest about the current reward system and its flaws, regardless of if we got hired and promoted in that system. We must recognize what the system is and actually in some sense how absurd it is.

Beyond examples of evolving practices, and there are good examples to highlight, as DORA importantly does, there needs to be a lot more urgent discussion, an internal dialogue, within the research community and between its different segments on what we want to reward and how we want to evaluate people. The status quo simply is no longer acceptable and now is the time to start being very concrete about how we change the system.

To this end, the Initiative for Science in Europe was running an open science working group. We had a virtual workshop in March 2021 with a very diverse set of stakeholders and we tried to think together about how we should reform the system. The draft report from that work has just been put online⁹. In this report we make a few main points. The main one is that researchers really should be central to how we reform research assessment. The time to act is now. The report explores which routes could be taken, at which levels change could happen and what steps different stakeholders could take to achieve comprehensive change while respecting any valid differences, such as between different disciplines. Evaluation in chemistry and medieval history probably is not and should not be the same, and so those differences should be respected.

We propose several policy options for different stakeholder groups. For research communities themselves, we urge that you need to have these conversations right now. You should have had them years ago, but now is better than never, and you must come up with concrete proposals. The message is: you cannot keep on using impact factors. What will you use instead, concretely? You have to decide, because if you do not decide, these impact metrics will continue to be misused or, as seems increasingly likely in Europe due to the activity of the Commission and other funders, new indicators will be imposed on you without your participation. You really must get involved therefore in a very concrete way, right now.
We also identify four essential principles, the main one being that researchers should be engaged in all decisions regarding changes to research assessment, and all stakeholders should engage with them from the beginning in their decision-making processes. Fortunately, there is already a strong researcher representation in the core drafting group for this European Commission initiative to reform research assessment.

We have to end the use of inappropriate metrics. DORA has said this for 10 years and now we just must do it. Honestly there is no valid reason to delay this any further. Of course, the hitch has been that we have known for a long time what we do not want, but we have not known what we want instead, and that is what we need to decide now. We need to agree on appropriate ways of assessing research and researchers in discipline-specific ways. There needs to be an appropriate balance between qualitative and quantitative evaluation. With metrics and indicators, some of them may be good and some of them may not be, so we have to evaluate them in each discipline and other contexts separately.

Finally – this is more for policymakers, universities, and funders – we have to all recognise that reforming assessment requires resources. We may have to come up with new systems. We may just need more time for evaluation, so perhaps we have to also consider whether all of the current forms of evaluation are needed or whether we could, for example, pool evaluations from different funding programmes and so forth.

Of course, we have seen that change is hard and changing entrenched mindsets is really hard. I have a personal anecdote that illustrates how hard this really is. Last year we achieved a very cool piece of science from my ERC project that we published open access with open data, and we tried to initially submit it to a very prestigious journal that has a glamorous brand. They said it was not novel enough. Fine, that is their subjective judgement, and maybe they are right. So we ended up publishing in a respected journal, a solid journal, that is just not as prestigious. Even I then caught myself thinking it was probably not worth a press release because it was not such an impressive journal. I really had to stop myself and realise I was caught in the same kind of thinking myself, even though I really should know better. Then I said to myself that it was the same research and exactly the same results and that I should make the press release. The university agreed and we got some nice publicity for the work.

Change is hard and it will take time to change the culture. I am not sure if we will be able to bring everybody along with us, but we certainly should try. However, it really is time to stop doing this to ourselves. Unlike publishing, evaluation is largely done by and to the research community itself. Of course, governments play a role, but
where do the governments get their ideas on how to evaluate? That comes from the scientific community in the end. There is a lot of power within the research community to change this and it really is now the time to start doing so. I am very happy to see the Paris Call, the European Commission effort, and statements from different university groups. There is a lot of momentum and I think we really have a shot at making this happen.

**To go a step further**

“Senior researchers who are in policymaking positions, who are heads of scientific societies, who are in academies of science, have a lot of prestige and they really should use that prestige and that power to help change the entire system.”

“The best form of government is democracy, so the best form of evaluation is peer review, and of course we should be the experts in our own discipline on what is good science and what is not.”

“The point of DORA is not to enforce. It is to inspire and to motivate. The European Commission’s proposal to form a coalition to reform research assessment will be based on a set of pledges. Signatories will sign up and there will be some form of monitoring. What form consequences would take is part of what is still being discussed. However, the idea is to take it one step further from an aspiration and from a soft power declaration.”

“What might have kept DORA and research assessment reform back is that there was a huge focus on open access. Access to research is important. There are questions to solve, there is work to be done, but I think a lot of people’s focus has now shifted to assessment, because changing assessment will also unlock so much more innovation in the publishing sphere. It will probably also trigger kind of a new wave in open access.”

“We may need some balance of indicators, but ones that are more responsible, more transparent, and more useful, and then perhaps put increasing emphasis on qualitative peer review. That may take some more time.”
References