

creating dependencies on problematic regimes.

Whether or not European countries decide to stop buying Russian gas, they will almost certainly experience considerable economic pain as prices continue to increase. With many businesses unable to withstand the coming shocks unaided, and the resulting potential for job losses, governments will have no option but to step in with relief.

European leaders are acutely aware that they are financing the enemy at their gates. They must remain united, and coordinate and accelerate the clean-energy transition – action that will be required if they are to achieve the goal set out in the Paris climate agreement of limiting global warming to 1.5 °C above pre-industrial temperatures.

In the short term, the need for energy security will probably see more power than usual generated using fossil fuels, but the overall message cannot now be faulted: European leaders must understand that decarbonization is the answer to both energy and climate security. And if they manage to lay the groundwork for a cleaner future as part of their response to the war in Ukraine, theirs will be a lesson for the world.

Time to recognize authorship of open data

The open-data revolution won't happen unless the research system values the sharing of data as much as authorship of papers.

At times, it seems there's an unstoppable momentum towards the principle that data sets should be made widely available for research purposes (also called open data). Research funders all over the world are endorsing the open data-management standards known as the FAIR principles (which ensure data are findable, accessible, interoperable and reusable). Journals are increasingly asking authors to make the underlying data behind papers accessible to their peers. Data sets are accompanied by a digital object identifier (DOI) so they can be easily found. And this citability helps researchers to get credit for the data they generate.

But reality sometimes tells a different story. The world's systems for evaluating science do not (yet) value openly shared data in the same way that they value outputs such as journal articles or books. Funders and research leaders who design these systems accept that there are many kinds of scientific output, but many reject the idea that there is a hierarchy among them.

In practice, those in powerful positions in science tend not to regard open data sets in the same way as publications

when it comes to making hiring and promotion decisions or awarding memberships to important committees, or in national evaluation systems. The open-data revolution will stall unless this changes.

This week, Richard Bethlehem at the University of Cambridge, UK, and Jakob Seidlitz at the University of Pennsylvania in Philadelphia and their colleagues publish research describing brain development 'charts' (R. A. I. Bethlehem *et al. Nature* <https://doi.org/10.1038/s41586-022-04554-y>; 2022). These are analogous to the charts that record height and weight over the course of a person's life, which researchers and clinicians can access.

This work has never been done on such a scale: typically in neuroscience, studies are based on relatively small data sets. To create a more globally representative sample, the researchers aggregated some 120,000 magnetic resonance imaging scans from more than 100 studies. Not all the data sets were originally available for the researchers to use. In some cases, for example, formal data-access agreements constrained how data could be shared.

Some of the scientists whose data were originally proprietary became active co-authors on the paper. By contrast, researchers whose data were accessible from the start are credited in the paper's citations and acknowledgements, as is the convention in publishing.

Such a practice is neither new nor confined to a specific field. But the result tends to be the same: that authors of openly shared data sets are at risk of not being given credit in a way that counts towards promotion or tenure, whereas those who are named as authors on the publication are more likely to reap benefits that advance their careers.

Such a situation is understandable as long as authorship on a publication is the main way of getting credit for a scientific contribution. But if open data were formally recognized in the same way as research articles in evaluation, hiring and promotion processes, research groups would lose at least one incentive for keeping their data sets closed.

Universities, research groups, funding agencies and publishers should, together, start to consider how they could better recognize open data in their evaluation systems. They need to ask: how can those who have gone the extra mile on open data be credited appropriately?

There will always be instances in which researchers cannot be given access to human data. Data from infants, for example, are highly sensitive and need to pass stringent privacy and other tests. Moreover, making data sets accessible takes time and funding that researchers don't always have. And researchers in low- and middle-income countries have concerns that their data could be used by researchers or businesses in high-income countries in ways that they have not consented to.

But crediting all those who contribute their knowledge to a research output is a cornerstone of science. The prevailing convention – whereby those who make their data open for researchers to use make do with acknowledgement and a citation – needs a rethink. As long as authorship on a paper is significantly more valued than data generation, this will disincentivize making data sets open. The sooner we change this, the better.



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