



TWAS, IAP JOIN OPEN DATA INITIATIVE

Open data is essential for 21st century science. Now TWAS and IAP are working with ICSU and ISSC on a global campaign to win endorsements for a new accord.

The emerging culture of big-data research, backed by the massive power of new digital technology, is transforming science and promising discoveries and applications that could touch every community on Earth. But disruptive technology can also disrupt the practices and values that guide global science, with particular risk for developing nations.

To address these concerns, four front-line international science groups are urging endorsement of an accord that advocates open access to publicly funded volumes of “big data”. TWAS and the InterAcademy Partnership (IAP), together with the International Council for Science (ICSU) and the International Social Science Council (ISSC), developed the accord in a global consultation under the banner of Science International.

The accord is called “Open Data in a Big Data World,” and it is available in several languages at www.science-international.org. Organisations can endorse the accord at that site.

“As the data revolution accelerates and the scientific potential of big data becomes clearer, it is timely that the major representative bodies of international science promote the importance of open data as a means of maximising creativity, maintaining rigour and ensuring that knowledge is a global public good

rather than just a private good,” said Geoffrey Boulton, president of CODATA, ICSU’s Committee on Data for Science and Technology.

“Open access to data will be essential if developing countries are to join in the benefits of the big data revolution,” said TWAS Executive Director Romain Murenzi (before his move to UNESCO headquarters). “If developing nations are left behind, if they are unable to make a full contribution to the global research enterprise, that will be costly not only for them and their people, but for all nations.”

The four organisations represent more than 250 national and regional science academies, unions and other organisations worldwide, with individual members at the highest levels of research, policy and education.

Science International is an initiative that will convene meetings periodically to focus on a high-priority science policy issue. In the second half of 2015, the four partners agreed to focus on big data and open data in a series of meetings and exchanges.

At the core of the process was an eight-member working group chaired by Boulton; members came from Asia, Africa, Latin America, North America and Europe. Each of the partner organisations assigned programme and communication staff to the effort.

DATA: “THE FABRIC OF MODERN SCIENCE”

In December, “Open Data in a Big Data World” was presented at the first Science Forum South Africa, and in high-level meetings on the sidelines at the forum. Naledi Pandor, South Africa’s minister of science and technology, cited Science International in her opening remarks. And with help from her ministry and South Africa’s Department of Science and Technology, a press conference generated valuable coverage in South Africa and beyond.

Science International came together at a crucial moment. The digital revolution has created unprecedented possibilities for collecting, storing and analysing data. Supercomputers and extremely large data sets, or big data, can be used to discern and analyse subtle patterns in areas ranging from security and biodiversity to climate change, genetic research and human behaviour. Such



analysis has great potential value for scientists, policymakers, private enterprise and others.

“Open Data in a Big Data World” describes the opportunities and challenges of the data revolution as an overarching interest for global science policy. A central conclusion of the accord is that, unless those data sets are open, there will be risks to the global scientific enterprise.

If the data is kept private, other researchers won’t be able to review and build on that knowledge – a practice that’s key to a healthy science culture.

▲ The accord, “Open Data in a Big Data World”, advocates open access to publicly funded volumes of big data.

A further concern is that, without open data, developing nations in Africa and worldwide will be less able to participate in – and contribute to – technology-driven research in fields of critical importance.

“Data is the fabric of modern science,” said ICSU President Gordon McBean of Canada. “The challenge for science today is to keep pace with the digital revolution, and for that we need a strong international framework setting out the principles for an open data regime that enables all nations and societies to benefit equally.”

TWELVE GUIDING PRINCIPLES

The accord proposes 12 principles to guide the practice of open data, focused on the roles played by scientists, publishers, libraries, funders and other stakeholders, and on technical requirements for open data. It also assesses the “boundaries of openness”.

“Open data should be the default position for publicly funded science”, the accord says. “Exceptions should be limited to issues of privacy, safety, security and to commercial use in the public interest. Proposed exceptions should be justified on a case-by-case basis and not as blanket exclusions.”

Leaders of the Science International partner organisations strongly encouraged their members and colleagues to consider the accord and related issues.

“Academies of science are important drivers of science policy in their countries,” said IAP President Mohamed H.A. Hassan. “We hope the more than 130 national and regional IAP member academies will now support the principles set out in this accord, take them to their governments and national science systems, and collaborate on moving towards their implementation.”

“Big data creates tremendous opportunities for social research,” added ISSC President Alberto Martinelli. “The social sciences have long explored the ethical implications of data collection, the protection of privacy and the risks of data commercialization, and it is critically important that social scientists engage in the debates around big and open data, to ensure that rapid developments do not result in a deepening of existing knowledge divides.” ■