SPRINGER NATURE

springernature.com

Airphoto Australia/Photodisc/Getty

SPRINGER NATURE INTERNATIONAL SYMPOSIUM ON SCIENCE COMMUNICATION

Building Trust in Science

11 December 2023
9:00–17:30

Leighton Hall, John Niland Scientia Building,
University of New South Wales

ADVANCING DISCOVERY

SONY

DIGITAL science

Sponsored by

ausSMC australian science media centre

Australian Academy of Science

UNSW SYDNEY

In partnership with **Springer Nature**

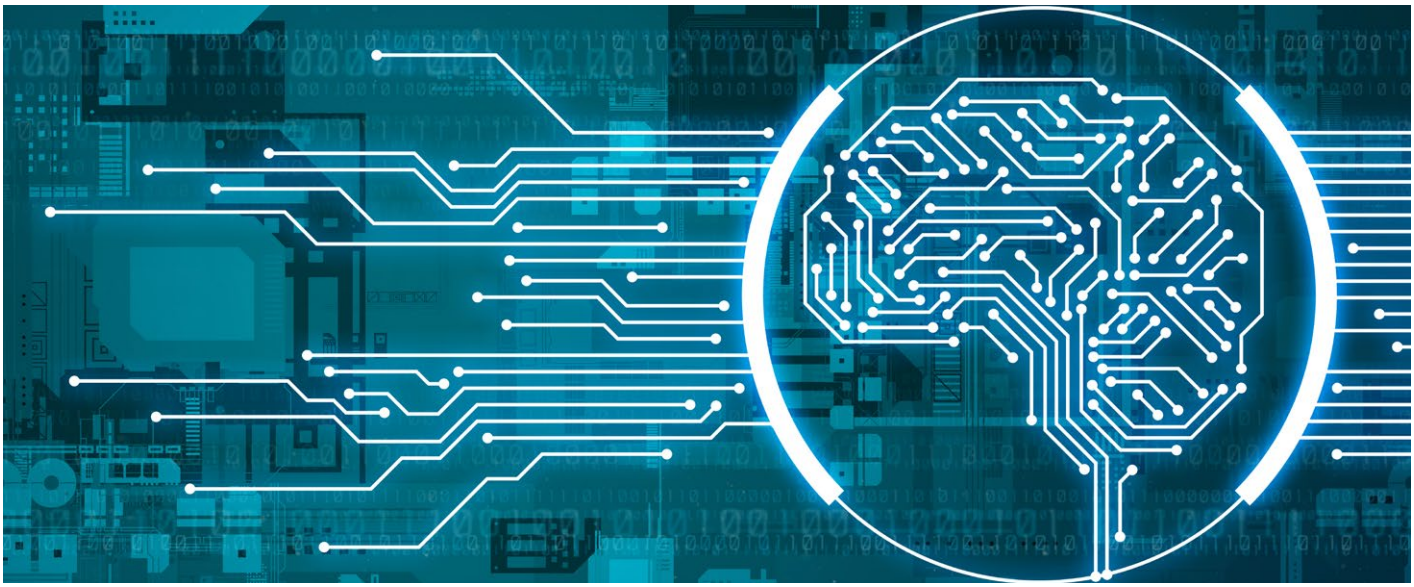


Table of contents

Science communication

Building trust in science

David Swinbanks
Chairman,
Springer Nature
Australia & New Zealand

The significance of effective science communication cannot be overstated. It serves as the cornerstone for fostering collaboration, trust and society's support for science.

Australia and New Zealand are leaders in this field in the Asia-Pacific region with a number of universities providing elective science communication units, and two (the Australian National University and University of Western Australia) offering master's degrees on the topic.

Furthermore, Australia has many effective organisations engaged in the communication of science to the public, including the **Australian Science Media Centre**, **Questacon**, **The Conversation**, **360info**, **The Royal Institution of Australia** and the **Australian Academy of Science**. As a consequence, Australia has a strong community of individuals skilled in science communication and journalism.

Although science communication is less developed in some other countries in the Asia-Pacific region, there is growing awareness of the need to cultivate such skills. The pandemic has highlighted the importance of authoritative and dependable scientific information. Furthermore, the arrival of large language models such as ChatGPT and Bard opens opportunities for their use in helping institutions and researchers in non-English-speaking countries to communicate their research in easy-to-understand terms to broad international audiences, collaborators and journals.

Simultaneously, the rampant spread of mis- and disinformation, has shown the potential to undermine trust in science, especially when coupled with a troubling increase in online harassment of experts. Large language models have the potential to exacerbate this situation through the generation of convincing fake information, but also the potential to identify and expose such information.

How will scientists adjust to the exciting new possibilities for communicating their work, while navigating potential landmines? How will the role of professional science communicators and journalists change?

How can governments, institutions and corporate entities help maximize the benefits of this bold new world? What oversight and regulatory responsibilities do they have with a view to maintaining — and ideally increasing — trust in science as we chart our path forward?

These are just a few of the questions that arise from the uncertainties we face.

At this symposium we are delighted to bring together some of the visionaries behind the development of AI with leaders in science communication, as well as those motivated to strengthen the communication of science to prepare us for the challenges and opportunities that lie ahead.

Programme

9:00–9:15	**Welcome and opening remarks**	David Swinbanks, Merlin Crossley, Steven Riddell (MC)
9:15–9:30	**Opening address** Virtual presentation from London	Magdalena Skipper
9:30–10:20	**Fireside chat** **AI and science communication** • Live online interview (20 mins) with Mira Murati • Hiroaki Kitano (30 mins)	Hiroaki Kitano Mira Murati **Interviewer** Stephen Pincock
10:20–10:35	Coffee break	
10:35–11:25	**Panel 1** **Impact and Application of AI to Science Communication** • Use of AI to disseminate easy-to-understand summaries of research in multiple languages • Training editors in the skills of prompting AI • Helping non-native English speakers to explain and communicate their research • Using AI to track and encourage good research practice • The challenges of detecting false and fake information generated by AI • Using AI to track misinformation, disinformation and fake news • Putting AI hallucination to good use	**Chair** Stephen Pincock **Panellists** Hiroaki Kitano, Caitlin Curtis, Nobuko Miyairi
11:25–12:15	**Panel 2** **Empowering Effective Dialogue Among Scientists, the Media and the Public** • Education and training in science communication for specialists and scientists • The role of Science Media Centres worldwide in supporting communication between scientists and the media • Enhancing communication between scientists and those in charge of PR and communications • Raising public interest and engagement with science • How can AI help or hinder?	**Chair** Jeffrey Robens **Panellists** Susannah Eliott, Sujatha Raman, Robyn Williams, Yuko Harayama

12:15–13:05 **Panel 3**

Combatting Mis-information, Dis-information and Online Harassment of Science Experts

- Fact checking to combat mis- and dis-information
- Surveys revealing the scale of harassment
- Training to combat harassment
- Handling social media
- How can AI help or hinder?

Chair
Gemma Conroy

Panellists
Lyndal Byford,
Bianca Nogrady,
Emma Johnston,
Anne Kruger

13:05–14:00 Lunch break

14:00–14:50 **Panel 4**

Navigating the Communication Challenges of Public Health Issues

- Lessons learned from the COVID-19 pandemic
- Combatting dis- and mis-information, while addressing legitimate concerns
- Tailoring communication to the audience, addressing linguistic and cultural differences
- Working with local communities
- How to prepare for the next pandemic
- How can AI help or hinder?

Chair
Susan Allison

Panellists
Brett Sutton,
Kenji Shibuya,
Summer May Finlay

14:50–15:40 **Panel 5**

Forging Global Reputations and Collaborations for Institutions and Nations

- Building trust and reputation through good research practice
- Systematic dissemination of information about Asia Pacific's best science
- Application of AI to build global reputation and collaborations
- Raising greater global awareness of Asia Pacific's leading institutions
- Building and encouraging collaboration and collaborative networks both regionally and globally
- The geopolitical challenges of building collaborations in the Asia Pacific region

Chair
Nick Campbell

Panellists
Cathy Foley,
Asako Omi,
Anna-Maria Arabia,
Motoko Kotani

15:40–16:00 Coffee break

16:00–16:30 **Final thoughts from the panel chairs and closing remarks**

16:30–17:30 Reception

Opening speakers

David Swinbanks

Chairman, Springer Nature Australia & New Zealand

David Swinbanks joined Nature in 1986 and has spent much of his 37-year career in Japan, with a five-year stint in London where he launched a series of Nature-branded physical science journals. He moved to Australia in 2013 and set up the Sydney office for Nature Research expanding on an existing presence in Melbourne. He is chairman of Springer Nature in Australia and New Zealand and founder of Nature Index.

Merlin Crossley

Deputy Vice-Chancellor Academic Quality at the University of New South Wales (UNSW)

Merlin previously served as dean of science at UNSW and enjoys both teaching and research. His lab works on CRISPR gene-editing to treat inherited blood diseases. Merlin is an enthusiastic science communicator, chair of the editorial board of The Conversation, chair of UNSW Press, deputy director of the Australian Science Media Centre, a member of the editorial board of BioEssays, and an honorary associate of the Australian Museum. He has been recognized by multiple awards, including a Rhodes Scholarship, the 2020 NSW Premier's Award for Medical Biological Science, the 2021 Lemberg Medal from the Australian Society for Biochemistry and Molecular Biology, and in 2021 a new species of iridescent butterfly bobtail squid was named in his honour – *Iridoteuthis merlini*, or Merlin's bobtail squid.

Magdalena Skipper

Editor in Chief, Nature

Magdalena Skipper is Editor in Chief of *Nature* and Chief Editorial Advisor for the Nature portfolio. A geneticist by training, she holds a PhD from University of Cambridge, UK. She has considerable editorial and publishing experience, having worked as Chief Editor of *Nature Reviews Genetics*, Senior Editor for genetics and genomics at *Nature* and Editor in Chief of *Nature Communications*. She is passionate about mentorship, research integrity, as well as collaboration and inclusion in research. As part of her desire to promote underrepresented groups in research, in 2018 she co-launched the Nature Research Inspiring Science Award for women early-career researchers.

Steven Riddell (MC)

Director of Consulting, Nature Research Intelligence

Steve Riddell is the Director of Consulting for Nature Research Intelligence. Steve started his career in academia with a PhD in pharmacology (University of Sydney) and as a researcher at the University of New South Wales, before moving from research and evaluation in the not-for-profit sector to market research in the health care sector. Steve has a strong interest in how research is measured and displayed and a passion to drive efficiencies for universities, government and corporate through the use of data.

Fireside chat

AI and science communication

Hiroaki Kitano

Senior Executive Vice President and Chief Technology Officer, Sony Group Corporation

Hiroaki oversees the R&D ecosystem across Sony. Additionally, he is CEO of Sony Research Inc. and Sony Computer Science Laboratories, Inc. (Sony CSL). His work at Carnegie Mellon University to build large-scale data-driven AI systems on massively parallel computers led to The Computers and Thought Award from the International Joint Conferences on Artificial Intelligence (IJCAI) in 1993. Hiroaki is the Founding President of the RoboCup Federation, President of IJCAI (2009–2011) and a member of scientific advisory boards for numerous academic institutions, including the European Molecular Biology Laboratory (EMBL) and a Professor at the Okinawa Institute of Science and Technology Graduate School in Japan. He received the Nature Award for Creative Mentoring in Science in 2009.

Stephen Pincock

Vice President (Impact Solutions), Springer Nature

Stephen has been writing about science since the year Intel shipped its first Pentium chips. As a journalist he worked for *The Financial Times*, *Nature*, *The Lancet*, the ABC and many other outlets. He has worked with governments, science advisory agencies and research centres to help communicate complex messages, and has authored several books on topics ranging from cryptography to coral reef biology. Currently, he is lucky to be VP Impact Solutions, leading a business unit that helps researchers and research organisations communicate with the communities they care about, whether that's other scientists or wider society.

Mira Murati (Live online interview)

Chief Technology Officer, OpenAI

Mira is Chief Technology Officer at OpenAI, the company behind natural language artificial intelligence (AI) systems, ChatGPT and DALL-E. She leads the company's research, product and safety teams. Mira and her teams are pushing the frontiers of what AI can do, making it safer and aligning with human intentions and values. Prior to joining OpenAI, she managed the product and engineering teams at Leap Motion, the manufacturer of a device that supports hand and finger motions as input, analogous to a computer mouse, but without hand contact. She also led the design, development and launch of vehicle products at Tesla Motors, including the Model X, as well as innovative programs in aerospace.

Panel 1 10:30–11:20

Impact and Application of AI to Science Communication

Topics

- Use of AI to disseminate easy-to-understand summaries of research in multiple languages
- Training editors in the skills of prompting AI
- Helping non-native English speakers to explain and communicate their research
- Using AI to track and encourage good research practice
- The challenges of detecting false and fake information generated by AI
- Using AI to track misinformation, disinformation and fake news
- Putting AI hallucination to good use

Stephen Pincock (Chair)
Vice President (Impact Solutions), Springer Nature

Stephen has been writing about science since the year Intel shipped its first Pentium chips. As a journalist he worked for *The Financial Times*, *Nature*, *the Lancet*, the ABC and many other outlets. He has worked with governments, science advisory agencies and research centres to help communicate complex messages, and has authored several books on topics ranging from cryptography to coral reef biology. Currently, he is lucky to be VP Impact Solutions, leading a business unit that helps researchers and research organisations communicate with the communities they care about, whether that's other scientists or wider society.

Hiroaki Kitano
Senior Executive Vice President and Chief Technology Officer, Sony Group Corporation

Hiroaki oversees the R&D ecosystem across Sony. Additionally, he is CEO of Sony Research Inc. and Sony Computer Science Laboratories, Inc. (Sony CSL). His work at Carnegie Mellon University to build large-scale data-driven AI systems on massively parallel computers led to The Computers and Thought Award from the International Joint Conferences on Artificial Intelligence (IJCAI) in 1993. Hiroaki is the Founding President of the RoboCup Federation, President of IJCAI (2009–2011) and a member of scientific advisory boards for numerous academic institutions, including the European Molecular Biology Laboratory (EMBL) and a Professor at the Okinawa Institute of Science and Technology Graduate School in Japan. He received the Nature Award for Creative Mentoring in Science in 2009.

Nobuko Miyairi
Consultant, Digital Science

Nobuko is based in Tokyo, Japan, and serves as a consultant to technology company Digital Science on their regional initiatives and new business development. As an expert in the field of scholarly communication, she teaches as a lecturer at her *alma mater*, Aoyama Gakuin University, advises the National Institute of Information and Communications Technology, and is a member of the DataCite APAC Expert Group. Previously, Nobuko served as ORCID Regional Director, Asia Pacific, and is a strong advocate of persistent identifiers and open research infrastructures. She also held positions at Nature Publishing Group (now Springer Nature) and Thomson Reuters (now Clarivate). She advised Paper Digest, an AI-based article summary service, which received the Catalyst Grant from Digital Science in 2018, and the People's Choice Award at the Society for Scholarly Publishing annual meeting in 2019. A librarian by training, Nobuko has earned a Master of Library and Information Science from the University of Hawai'i at Mānoa in the United States.

Caitlin Curtis

Research Fellow and Lecturer, Centre for Policy Futures and School of Business, The University of Queensland

Caitlin's interdisciplinary research explores trust and the applied ethics of emerging technologies, including artificial intelligence and genomics. She uses quantitative and qualitative methods to better understand multiple stakeholder perspectives and their ethical impacts to inform policy around new technologies. Caitlin is an alumnus of the ABC Top 5 media residency programme, which equips early career researchers with the knowledge and confidence to communicate with the media. She is committed to science and technology communication as part of her work.

Panel 2 11:20–12:10

Empowering Effective Dialogue Among Scientists, the Media and the Public

Topics

- Education and training in science communication for specialists and scientists
- The role of Science Media Centres worldwide in supporting communication between scientists and the media
- Enhancing communication between scientists and those in charge of PR and communications
- Raising public interest and engagement with science
- How can AI help or hinder?

Jeffrey Robens (Chair)
Head of Community Engagement and Lead Trainer, Nature Masterclasses, Researcher Training Solutions

Jeffrey runs many of Springer Nature's training workshops to improve publication output worldwide. He has strong scientific qualifications, with 20 years of academic experience and numerous publications and awards. He received his PhD from the University of Pennsylvania in the US and then worked at premier research institutes in Singapore and Japan. Since leaving academia in 2012, he has conducted more than 500 days of academic training workshops worldwide and written numerous articles to help researchers improve their publication quality and impact.

Robyn Williams
Science journalist and broadcaster, Australian Broadcasting Corporation

Although he graduated with a Bachelor of Science (honours) in England, Robyn admits to spending as much time acting as studying. Early in his career he made guest appearances in The Goodies, Monty Python's Flying Circus and Doctor Who. He has conducted countless interviews with scientists on ABC TV on programs such as Quantum and Catalyst, narrated the Nature of Australia series and appeared in World Safari with David Attenborough. Outside the ABC, Robyn has served as President of the Australian Museum Trust, Chairman of the Commission for the Future and President of the Australian Science Communicators. In 1987, he was proclaimed a National Living Treasure. In 1993, Robyn was the first journalist elected as a Fellow Member of the Australian Academy of Science. He is deputy chair of the Australian Science Media Centre.

Sujatha Raman
Professor and Director of Research at the Centre for Public Awareness of Science, Australian National University

Sujatha is the UNESCO Chair in Science Communication for the Public Good. She is trained in social, cultural and policy studies of science and technology. Sujatha is interested in researching and fostering the forms of expertise needed to respond to planetary crises in the context of diversity in how we know, value and order things. She has led and contributed to multiple transdisciplinary collaborations on science/society relations and science/policy issues, including environmental and energy transitions, emerging technologies and responsible innovation. She was previously Co-director of Research at the Institute for Science and Society (ISS) at the University of Nottingham in the UK, and the Director of the Leverhulme Research Programme, 'Making Science Public'.

Susannah Eliott

CEO, Australian Science Media Centre

Susannah has more than 25 years of practical experience in science communication, with the interface between science and the media being her primary focus. She has worked internationally, chaired the Expert Working Group on Science and the Media for the Australian Government, producing the report, *Science and the Media: From Ideas to Action,* and was appointed to the Australian national Climate Commission (2011–2012). She is a member of the Inspiring South Australia Steering Group and has been involved in the development of numerous innovative science communication projects, including Scimex.org, Collaborative Journalism, and the Indigenous Media Mentoring Program.

Yuko Harayama

Professor Emeritus, Tohoku University, and Co-chair, Japanese Association for the Advancement of Science

Yuko is a Professor Emeritus at Tohoku University and co-chair of the Board of Directors of the Japanese Association for the Advancement of Science (JAAS), a non-profit organization established in 2022. Until March 2022, she was RIKEN's Executive Director for international affairs. Prior to joining RIKEN, she served in the Cabinet Office of Japan as an Executive Member of the Council for Science, Technology and Innovation, and at the OECD as Deputy Director of the Directorate for Science, Technology and Industry. Yuko holds a PhD in Education Sciences and a PhD in Economics. She received the Chevalier de la Légion d'Honneur in 2011. She is a Foundation Fellow of the International Science Council.

Panel 3 12:10–13:00

Combatting Mis-information, Dis-information and Online Harassment of Science Experts

Topics

- Fact checking to combat mis- and dis-information
- Surveys revealing scale of harassment
- Training to combat harassment
- Handling social media
- How can AI help or hinder?

Gemma Conroy (Chair)

Senior reporter in the Asia-Pacific bureau at Nature news

Gemma is a senior reporter in the Asia-Pacific bureau at *Nature* news. She has previously worked as a staff reporter for Nature Index and the Australian Broadcasting Corporation. Her reporting has also appeared in *The New York Times*, *Scientific American*, *New Scientist*, ScienceAlert and *Cosmos*, among other outlets. In 2020, her work appeared in *The Best Australian Science Writing* anthology published by UNSW Press.

Anne Kruger

Director, RMIT CrossCheck

Anne was appointed director of FactLab CrossCheck at RMIT University in January 2023. CrossCheck is a collaborative initiative of international verification experts, many of whom were pioneers in Open Source Intelligence techniques and a new way of thinking about reporting, training and news literacy via pre-emptive solutions. Anne is a subcommittee board member for Australia's first misinformation and disinformation regulatory code and was co-chief investigator during the code's development. Anne was previously an anchor at CNN Hong Kong during SARS. She established a verification lab at the University of Hong Kong as part of her PhD and was the lead author of *Verification, monitoring and responsible reporting in an age of information disorder: A guide for practitioners in Southeast Asia*.

Bianca Nogrady

Founding President, Science Journalists Association of Australia, and freelance science journalist

Bianca is an award-winning freelance science journalist, author and broadcaster. She writes regularly for the *The Guardian*, *Nature*, *The Saturday Paper* and *WIRED*, and her work has also appeared in outlets including *The Atlantic*, *Cosmos*, *Australian Geographic*, *MIT Technology Review* and *The Age*. She's also the founding president of the Science Journalists Association of Australia.

Lyndal Byford

Director of News and Partnerships, Australian Science Media Centre

Lyndal has experience communicating science in a range of settings including at museums, within the pharmaceutical industry and in media relations both here and in the UK. She is a frequent commentator on science media relations and regularly appears on ABC Sydney, ABC Darwin and ABC Nightlife. She has written for *Crikey*, the ABC and News Corp Australia. Lyndal was also a member of Inspiring Australia's Science and the Media Expert Working Group for the Australian Government Department of Innovation, Industry, Science and Research. She was awarded the 2023 Unsung Hero of Science Communication award from the Australian Science Communicators.

Emma Johnston

Deputy Vice-Chancellor (Research), University of Sydney

Emma is a sustainability and diversity champion whose current research focuses on global change, including marine debris, biological invasions, extreme events and Antarctica's environmental future. She was previously Dean of Science and Pro-Vice-Chancellor of Research at the University of New South Wales and President of Science & Technology Australia. She is a Chief Author of the *Australian State of Environment Report 2021*. Emma is a Director on the CSIRO Board, on the Great Barrier Reef Marine Park Authority board and a governor of the Ian Potter Foundation. Emma was made an Officer of the Order of Australia (AO) in the 2018 Queen's Birthday Honours for 'distinguished service to higher education, particularly to marine ecology and ecotoxicology'.

Panel 4 14:00–14:50

Navigating the Communication Challenges of Public Health Issues

Topics

- Lessons learned from the COVID-19 pandemic
- Combatting dis- and mis-information while addressing legitimate concerns
- Tailoring communication to the audience, addressing linguistic and cultural differences
- Working with local communities
- How to prepare for the next pandemic
- How can AI help or hinder?

Susan Allison (Chair)

Chief Editor, Nature Reviews Nephrology and Consulting Editor, Nature

After completing an honours degree in Biochemistry at the University of Otago, New Zealand, Susan moved to Sydney to take up a PhD position at the Garvan Institute of Medical Research, investigating mechanisms of anabolic bone formation. She then moved to Sweden to undertake postdoctoral research at the Stem Cell Institute at Lund University. Susan left the lab to enter a career in scientific publishing in London in 2008, joining *Nature Reviews Gastroenterology & Hepatology* as Associate Editor, and was appointed Chief Editor of *Nature Reviews Nephrology* in 2009. In June 2020 Susan took on an expanded role as Consulting Editor for *Nature*. She relocated from London back to Sydney in September 2022.

Kenji Shibuya

Research Director, Tokyo Foundation for Policy Research, and Managing Director, Soma COVID Vaccination Medical Center

Kenji is Senior Executive Director of Medical Excellence JAPAN, Research Director at the Tokyo Foundation for Policy Research, Managing Director at the Soma COVID Vaccination Medical Center in Soma City, Fukushima, Japan, and a venture partner of Eight Roads Ventures Japan. Prior to this, he was Director of the University Institute for Population Health at King's College London in the UK. His expertise ranges from health metrics and evaluation to the global burden of disease and health system performance. Kenji spearheaded Japan's health policy agenda at the Hokkaido Toyako G8 Summit in 2008 and the Ise-Shima G7 Summit in 2016. He was recently a Senior Advisor to the Director-General of the World Health Organization.

Summer May Finlay

Senior Lecturer, University of Wollongong

Summer is a Yorta Yorta woman who grew up on Awabakal country (West Lake Macquarie) and is a passionate advocate for Aboriginal and Torres Strait Islander people. Her passion has driven her to work in several public health fields, including social marketing, communications research and policy. Summer is Co-Chair of the Aboriginal Health and Medical Research Council of NSW Ethics Committee, Co-Chair of the World Federation of Public Health Associations Indigenous Working Group and Deputy Chair of Thirrili, Australia's only Indigenous suicide 'postvention' organisation.

Brett Sutton

Director of Health and Biosecurity, CSIRO

Brett Sutton is Director of Health and Biosecurity at CSIRO, Australia's national science agency. He is a qualified public health physician, with specialist knowledge in tropical medicine and infectious disease, including in lower-middle income countries and complex humanitarian environments. Prior to CSIRO, he was the state of Victoria's Chief Health Officer and Chief Human Biosecurity Officer. In this role, Brett played a leading role in guiding the Victorian public health response to COVID-19, including as statutory decision-maker and departmental spokesperson. Prior to this, Brett held several senior positions within the Victorian Department of Health, including as Deputy Chief Health Officer (Communicable Disease) and in the Health Protection Branch.

Panel 5 14:50–15:40

Forging Global Reputations and Collaborations for Institutions and Nations

Topics

- Building trust and reputation through good research practice
- Systematic dissemination of information about Asia Pacific's best science
- Application of AI to build global reputation and collaborations
- Raising greater global awareness of Asia Pacific's leading institutions
- Building and encouraging collaboration and collaborative networks both regionally and globally
- The geopolitical challenges of building collaborations in the Asia Pacific region

Nick Campbell (Chair)
Vice President for Academic Affairs, Springer Nature

Nick joined the then Nature Publishing Group in 2001 and has been an editor on *Nature Reviews Genetics*, Executive Editor of *Nature* and Director of Nature Portfolio in China. As the Managing Editor of Nature, Nick led a major digital and print relaunch. Prior to his current role, Nick was Executive Editor and Executive Vice President for Global Institutional Partnerships. Nick's first degree, PhD and postdoctoral research were in genetics. He also has a Graduate Certificate in journalism from the University of Queensland, Australia.

Anna-Maria Arabia
Chief Executive, Australian Academy of Science

Anna-Maria has more than 20 years' experience in the science sector. She currently leads the Australian Academy of Science, an independent not-for-profit organisation that provides authoritative and influential scientific advice, represents Australia on key international scientific bodies, builds public awareness and understanding of science and champions and supports excellence in Australian science. In this role Anna-Maria has led significant reform in global science engagement, science policy matters and improving diversity and inclusion in science. She started her career as a neuroscientist, undertaking medical research in Australia and abroad, before holding several senior executive positions in the science sector, including CEO of Science and Technology Australia and Deputy Director at Questacon – the National Science and Technology Centre in Australia.

Asako Omi
Member of the House of Representatives, Japan

Asako is a member of the House of Representatives in Japan. Most recently she served as State Minister for Internal Affairs and Communications and previously as Parliamentary Vice-Minister for Foreign Affairs. She is a former Secretary General of the Science and Technology in Society (STS) forum, which brings together scientists and global leaders in the fields of politics, business, and academia to discuss issues of science and technology and their implications for society. Prior to joining the House of Representatives in 2014 she worked in the private sector, notably at Nippon Telegraph and Telephone Corporation (NTT).

Motoko Kotani

Executive Vice President for Research, Tohoku University

Motoko is a professor at the Mathematical Institute in the Graduate School of Science and the Principal Investigator of the Advanced Institute for Materials Research (AIMR) at Tohoku University. Her science leadership journey has included roles as an executive member of the Council for Science, Technology and Innovation within Japan's Cabinet Office, Executive Director at RIKEN and President of the Mathematical Society of Japan. Since 2022 she has been Science and Technology Co-Advisor to the Minister for Foreign Affairs. She will also take up the presidency of the International Science Council in 2024. She currently serves as the Vice President for Science and Society within the council.

Cathy Foley

Australia's Chief Scientist

Cathy began her current role in January 2021 after an extensive career at Australia's national science agency, CSIRO, including as the agency's Chief Scientist. She is an internationally recognised physicist with major research achievements in superconductors and sensors, which led to the development of the LANDTEM sensor system to locate valuable deposits of minerals deep underground. Her scientific excellence and influential leadership have been recognised with numerous awards and fellowships, including election to the Australian Academy of Science in 2020, and an Order of Australia for service to research science and the advancement of women in physics.

Advancing science communication in the Asia Pacific

Taking a look at strategies ranging from Australia to Japan

Australia and neighbouring New Zealand are leaders in the Asia Pacific region in science communication training and education. A growing element of this training is targeted at scientists seeking to communicate their research more effectively.

Two Australian universities (the Australian National University (ANU) and University of Western Australia) offer master's degrees in science communication. Several other Australian universities offer science communication courses to undergraduate and postgraduate students.

ANU is the strongest player, with a 30-year history and a well-established team of about a dozen faculty. Most people taking these courses at ANU are aiming to become professional science communicators, but up to a third are scientists seeking to improve their communication skills. As a result, ANU has recently introduced a graduate certificate course that caters more to scientists' needs.

At the master's and graduate certificate level, ANU has roughly 50 students completing the degree each year. At the undergraduate level, about 500 students take courses each year. ANU also offers workshops of varying sizes, training about a thousand scientists each year.

The University of Melbourne began offering a substantive science communication programme in 2010, with an interdisciplinary team of five scientists providing training in communication for science students at undergraduate and postgraduate levels. The programme comprises five subjects, each tailored for a different student cohort. The two largest subjects are for master's-level students. One subject for research-active master's students, 'Communication for Research Scientists' is taught three times a year — twice as a 12-week semester and once as a 3-week intensive winter class. The class is compulsory for students in several science

imaginima/iStock/Getty

master's degrees. 'Communicating Science at Work' is for non-research-active students and is compulsory for students in the Master of Data Science and Master of Biotechnology courses. Approximately 500 postgraduate students undertake these subjects each year, and the team provides undergraduate training for another 800 students or so.

Building on this foundation in science communication education, Australia has a number of organizations dedicated to the communication of science to the public, including:

- The **Australian Academy of Science**, which, among many activities, builds public awareness and understanding of science;
- **Questacon**, which is offering interactive science services and courses linked with the Australian National University;
- The Australian Science Communicators (**ASC**), which has a 1,650-member network;
- The Science Journalists Association of Australia (**SJAA**);
- The Australian Science Media Centre (**AusSMC**), which is disseminating daily press releases from Australian institutions and international science journals via **Scimex**;
- and the Royal Institution of Australia (**RiAus**), which communicates science directly to the public and publishes the highly regarded popular science magazine ***Cosmos***.

There are also programmes for scientists to communicate with high school students, such as the **Interview a Scientist** initiative of **Stem Avenue**.

A publication that has had a significant impact on communication with the wider public, not just in science but all areas of academia, is ***The Conversation***. With the support of a team of journalists, *The Conversation* engages academics from across all Australian universities and CSIRO (Australia's national science agency) to write frequent articles for the public on science, technology, health, politics, economics and social sciences. These articles are freely available online. Every university in Australia, several from New Zealand and CSIRO help fund the initiative, along with public donations.

After building great success in Australia, *The Conversation* has been replicated in the UK, New Zealand, Canada, the United States, Spain (in Spanish), Brazil (in Portuguese), France (in French) and Indonesia (in Indonesian). It has created a competitive environment among universities that vie for their academics to contribute articles.

The founder of *The Conversation*, on leaving the publication, launched another platform called **360info** based on a slightly different model, acting as a wire service feeding articles to publishers. The articles are released to the public after a two-day embargo. Like The Conversation, the articles are written by academics and edited by professional journalists.

Neighbouring New Zealand is similarly strong in science communication. Two universities — University of Otago and Victoria University of Wellington — offer courses up to master's level, although Otago has recently paused its master's programme while continuing distance learning. Like Australia, New Zealand has a **Science Media Centre**, that feeds press releases into Scimex, a local edition of *The Conversation* and the Science Communicators Association of New Zealand (**SCANZ**), which is closely linked to Australia's ASC.

OTHER PARTS OF EAST AND SOUTH-EAST ASIA

Singapore invests heavily in communicating its science to the world. Nanyang Technological University has a **graduate module** for training scientists in communicating their research. The National University of Singapore (NUS) had a joint master's programme with ANU that started in 2009, but has since been abandoned. NUS maintains an **undergraduate course** for scientists. The **Science Centre Singapore** engages the public, in particular children, with exhibitions, interactive displays, school programmes, scientific magazines and an observatory.

In neighbouring Malaysia moves are afoot to improve science communication. The University of Malaya has set up a new **master's course in science communication** aimed at training professional science communicators. Malaysia also has a pilot science media centre that hopes to join the global network of such centres.

Education in science communication in East Asia is less developed. Mainland China has only three universities that offer courses in science communication: the University of Science and Technology of China, the University of Chinese Academy of Sciences and SooChow University. These courses are primarily in social science media and communications departments, and are not targeted at scientists.

In Taiwan, National Pingtung University recently set up a master's course in science communication for professional science communicators, but it is remote from major cities and has limited resources. There are no other degrees or programmes specifically for science communication, however Taiwan does have a Science Media Centre.

KAIST in South Korea has a master's course in science journalism suitable for journalists and those pursuing a career in PR and communications, but it is not intended for scientists. No South Korean universities run courses in science communication. The Korea Foundation for the Advancement of Science & Creativity (KOFAC) runs a certificate course for scientists and science communicators with about 200 participants each year. KOFAC is planning to establish a science media centre.

JAPAN'S APPROACH

Japan bolstered science communication from 2005 to 2009 with government grants worth about US$1 million annually per institution awarded to the University of Tokyo (UTokyo), and Hokkaido and Waseda universities.

Hokkaido University continues to offer a substantial programme called CoSTEP, which trains about 80 students each year in professional science communication with a one-year certificate course. UTokyo maintains a 'science interpreter' minor course that is taken by roughly 10 students annually, while Waseda University transformed its Master of Arts Program for Journalist Education in Science and Technology into a broader journalism programme with some science journalism training. Each year roughly 20–30 students graduate with master's degrees and 2–5 obtain science journalism certification.

The Japan Association of Communication for Science and Technology (**JACST**) was established in 2007 for professionals working in public relations and communications in Japan's universities and research institutes. It has about 200 members from 136 institutions and holds annual meetings and events. Over the past decade or so, several universities and research institutes have employed non-Japanese science communicators to promote their institution's research in English. These science communicators formed the Japan SciCom Forum (**JSF**) in 2018. JSF holds an annual meeting and smaller monthly events, bringing together those engaged in the international communication of Japanese science.

In 2010, with support from AusSMC and an annual government grant, Japan established a Science Media Centre. It played a key role in helping international media cover the Fukushima nuclear power disaster, but funding ended after three years and the centre is largely dormant apart from some *ad hoc* activities, such as workshops run by former members.

The **Miraikan** — the National Museum of Emerging Science and Innovation — engages the public in science and technology through exhibitions, classes and talks. The Japanese Association for Advancement of Science (**JAAS**) was also very recently formed to engage all levels of society in dialogue about science.

However, training for scientists in Japan on how to communicate their research to broad audiences is limited. The Earth Life Science Institute (ELSI) at Tokyo Institute of Technology has set a precedent by establishing a mandatory course in science communication for its small cohort of graduate students.

Some non-Japanese faculty at several universities, such as UTokyo and Kyoto University, also run small programmes to train scientists, but the courses tend to only last as long as the faculty remain. Yet it is clear from a recent survey by Springer Nature that the vast majority of scientists in Japan would value more support and training in science communication to broad audiences (see next page). Communication courses for scientists pioneered in other countries, particularly Australia, could offer Japan and the wider region a useful model for local implementation.

Japan's researchers seek more training in science communication

The below is based on a question from the Springer Nature Survey of Research Communication in Japan, a survey of Japanese researchers that was carried out by Springer Nature in early 2023 and received 1,063 responses.

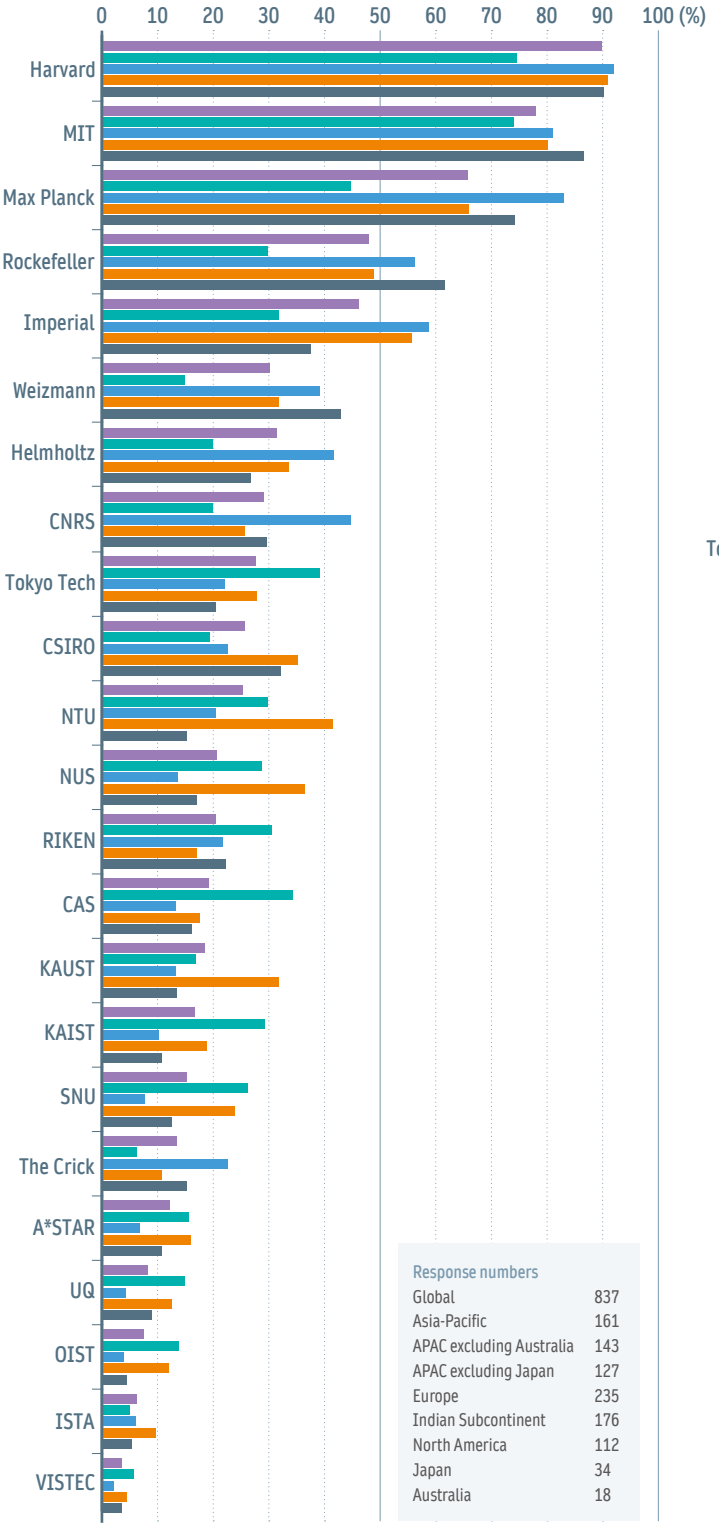
Question:
What support or training has been or would be most effective to help you communicate your research to the wider community?

The brand awareness of top institutions in Asia Pacific is low compared to many in Europe and the United States

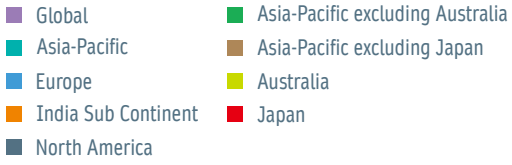
The brand awareness of top institutions in the Asia Pacific region among scientists worldwide is significantly lower than that of top institutions in Europe and the United States. Brand awareness of Asia Pacific institutions sits at about 25% or less.

These results are from a 2023 Springer Nature survey of 800+ scientists worldwide, commissioned by Okinawa Institute of Science and Technology (OIST) in Japan.

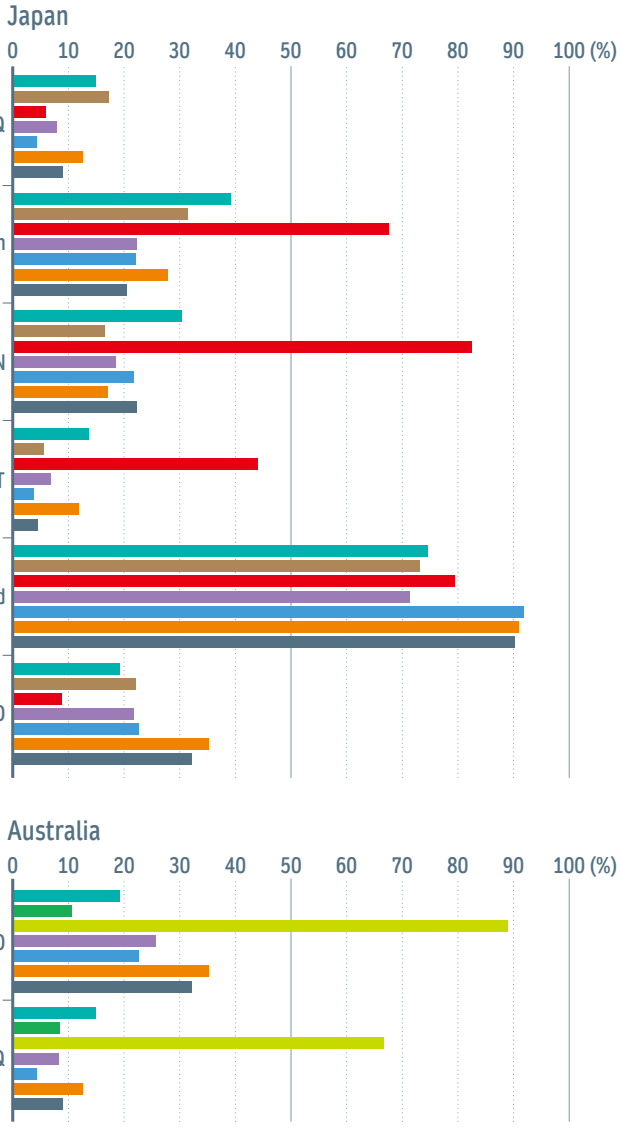
Which of the following have you heard of?



Response numbers	
Global	837
Asia-Pacific	161
APAC excluding Australia	143
APAC excluding Japan	127
Europe	235
Indian Subcontinent	176
North America	112
Japan	34
Australia	18



The brand awareness of top institutions in Japan and Australia is higher in the domestic scientific community than internationally.



*The margin of error for responses for Japan and Australia is high because of the low response numbers (34 for Japan and 18 for Australia). Nevertheless, the much higher brand awareness of institutions within their country compared with outside is clearcut.

The Australian Science Media Centre

Helping diverse expertise reach the public

When Susannah Eliott first visited the London-based Science Media Centre in preparation for setting up the Australian Science Media Centre, she arrived at a terrible time. It was two days after the devastating London bombings of 7 July 2005. The city was shut down and in shock, and Eliott expected that the staff of the London centre would have little to do in the aftermath.

Instead, she found the opposite. "I found them absolutely frantic, all hands on deck," says Eliott, who is currently CEO of the Australian Science Media Centre (AusSMC). In the wake of the deadly terrorist attack, journalists were desperately seeking experts to comment on everything from the chemical used in the bombs to emergency management and trauma medicine. "I realized that it doesn't matter what you're looking at, just about any headline or news story has a need for expertise."

AUSTRALIA'S SCIENCE MEDIA CENTRE

The Australian Science Media Centre came into being in late 2005, funded by annual sponsorships from the media, including Australia's public broadcasters, the Australian Broadcasting Corporation and Special Broadcasting Service; universities and the government research sector; and a few private companies, including Springer Nature.

AusSMC was modelled on the UK Science Media Centre, which has a mission to work with journalists, scientists and press officers to provide policy-makers and the public with "accurate and evidence-based information about science and engineering through the media". However, there are some key differences between the two centres. One is that AusSMC works with all journalists, not just specialist science journalists.

One AusSMC core activity is sourcing and providing expert scientific commentary from differing viewpoints on major news developments. Those Expert Reaction emails go out to thousands of reporters. "Journalists often deal with up to four stories a day and even specialist reporters are under the pump. Just knowing what different experts are saying, even if you don't use those quotes, can be helpful," Eliott says.

In 2015, AusSMC created a new platform to help link journalists — and the public — with science news resources. The Science Media Exchange (**Scimex**), came about because journalists were struggling to parse the many sources of science news, which include press release sites, research organization press releases and science news sites.

On Scimex, they can not only access a centralized source of press releases and associated research papers, but also a database of nearly 2,000 scientific experts happy to take media queries. AusSMC also vets the press releases it receives, requests rewording where necessary and will reject them if considered misleading. This makes it very different to many other science news hubs.

RESPONDING TO THE TIMES

The day-to-day work of AusSMC is updating Scimex with the latest news, says Lyndal Byford, director of news and partnerships at AusSMC. The stories might be relevant to Australians — such as a new study about bushfires — or have a significant number of local researchers involved. It might also be big international news, such as the discovery of a new exoplanet. The Science Media Centre in New Zealand and Pacific Island nation institutions also post on Scimex, providing some regional coverage.

Anne Kruger, director of CrossCheck at the RMIT Fact Lab in Melbourne — an independent centre focused on monitoring, understanding and combating online misinformation — says AusSMC is vital in supporting evidence-based reporting in Australia. "There's a huge need for journalists and society to understand the scientific method a lot better, and of course that was most obvious during COVID-19. " For non-specialist journalists on a deadline, there often isn't time to do the kind

of research needed to achieve that understanding, which is where things like AusSMC's expert commentary and press briefings become vital. "We absolutely rely on this expertise," she says.

The AusSMC also helps train scientists in how to work with journalists and provides training for general journalists about how to accurately cover scientific research.

Today, AusSMC has an estimated 40,000 unique usages of the expert comments alone each year. One analysis by centre staff compared the use of experts in coverage of the 2003 Canberra bushfires (before the centre was established) with coverage of the 2009 Black Saturday bushfires.

While news reports of the 2003 fires included hardly any expert interviews, the 2009 reporting showed a massive increase in expert commentary: "everything from architects talking about underground bunkers, through to climate experts and bushfire behaviour and trauma experts," Eliott says.

And the SMC model is increasingly being adopted in other parts of the world, with centres also established in places including the UK, Australia, New Zealand, Germany, Spain, Africa and Taiwan. Malaysia has a pilot centre that hopes to meet the requirements to join the global network and a new centre is planned in South Korea.

The new normal for scientists

Australian Science Media Centre (AusSMC) staff are on the lookout for stories that have the potential to be misreported, "ones that might cause confusion in the community, be open to misinformation or misinterpretation, or just require a little more nuance and explanation," explains Lyndal Byford, director of news and partnerships at AusSMC.

That role became acutely critical during the COVID-19 pandemic, when misinformation flooded the online landscape and permeated into reporting. Byford says the pandemic underscored the importance of providing clear, evidence-based information that also communicated the nuance and uncertainty of the science. Prime examples included the modelling of infection and death rates and the impact of interventions such as masking. "The pandemic showed that when scientists are able to provide that voice of evidence, they are a trusted source and can provide insight in a way that politicians can't."

In addition, although SMCs are primarily domestically focused, they are beginning to work together regionally and globally. For stories of international significance, SMCs often share expert reactions from their individual nations to provide the media with a global perspective.

During the pandemic, several SMCs, including Australia and New Zealand, partnered with Meedan (a technology not-for-profit that builds software to strengthen journalism) with funding from Google. This partnership resulted in the establishment of the **COVID-19 Vaccine Media Hub**, an online resource for journalists seeking evidence-based vaccine information.

AusSMC now also provides resources and training to help scientists in the media prepare for, and deal with, online harassment. This serious issue was **brought to light** during the pandemic through research and investigations by AusSMC and *Nature* magazine. Of the scientists surveyed by *Nature*, roughly one quarter reported harassment or trolling after speaking via the media about COVID-19, about 15 per cent reported threats of physical violence and 40 per cent reported emotional or psychological distress after making media or social media comments.

Since then, AusSMC's **Science Media Savvy** website has assisted scientists to learn about and prepare for media exposure, how to use social media to better communicate their science, and how to deal with communicating about controversial science.

Further reading: Science communication and AI

How ChatGPT is transforming the postdoc experience
https://www.nature.com/articles/d41586-023-03235-8

What's the best chatbot for me? Researchers put LLMs through their paces https://www.nature.com/articles/d41586-023-03023-4

AI and science: what 1,600 researchers think
https://www.nature.com/articles/d41586-023-02980-0

How to stop deep fakes from sinking society — and science
https://www.nature.com/articles/d41586-023-02990-y

Artificial intelligence takes center stage: exploring the capabilities and implications of ChatGPT and other AI-assisted technologies in scientific research and education (symposium at WEHI)
https://onlinelibrary.wiley.com/doi/full/10.1111/imcb.12689

What is Kando?

It is the sense of being alive, of being empowered.

A feeling of wonder that is shared around the world, bringing people closer together.

When Kando unites us, it connects us to the future.

It becomes the power that creates more Kando, and the driving force that moves the world forward.

That is why we strive to unleash creativity and push the boundaries of technology.

Towards a world where everyone, in every moment, can experience Kando.

Sony's Purpose

Fill the world with emotion, through the power of creativity and technology.

Sony's Purpose

http://www.sony.com/en/P_V

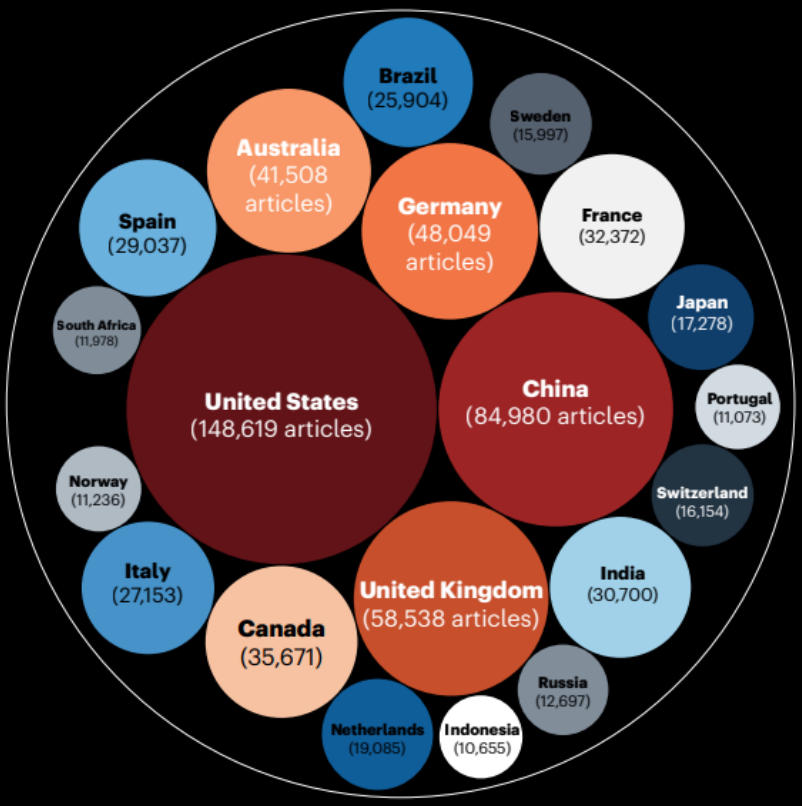
SONY

nature research intelligence

How AI can refine your SDG research strategy

A geo-analysis of where Climate Action projects are being conducted shows 237 countries recording contributions over the last 10 years.

The United States emerges as the dominant player, having contributed almost 150,000 publications (16% of global output) between 2013 and 2022*.



Nature Navigator allows you to explore the anatomy of Climate Action research and understand the funding landscape, all without the need for a data scientist.

Find out which fields of research are booming and who the top funders are in the Climate Action space.

* Quoted publication volumes cover the time period from 2013-2022 and are based on the location of the research institution from which a publication derives

Sign up to access the full report today

www.nature.com/research-intelligencet