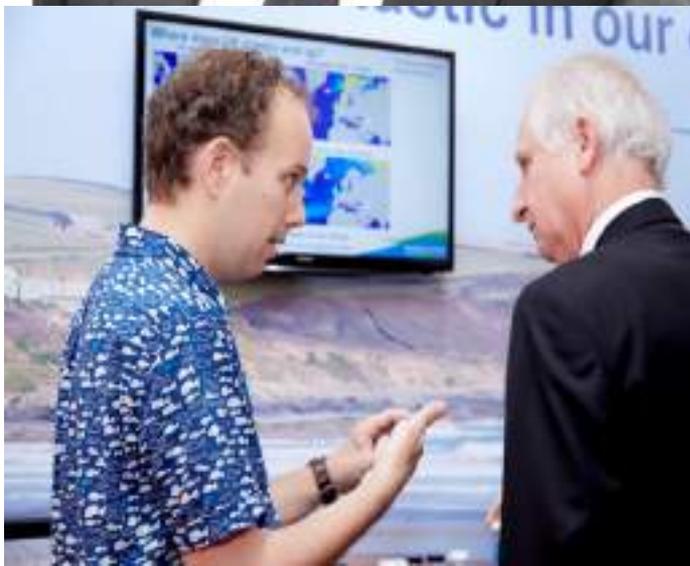




Science Advice in the Broader Context: interactions with public, law and parliament

Dr Julie Maxton
Executive Director

**Making science part
of wider conversation**



Provide support for scientists to engage

Public Engagement Courses

Developing effective engagement that is of benefit to researchers, their research and the public.

- Introduction to Public Engagement
- Public Engagement in Practice
- Engaging with Schools
- Public Engagement Fund

Writing & Media Skills

The Royal Society provides courses for scientists on writing and media skills

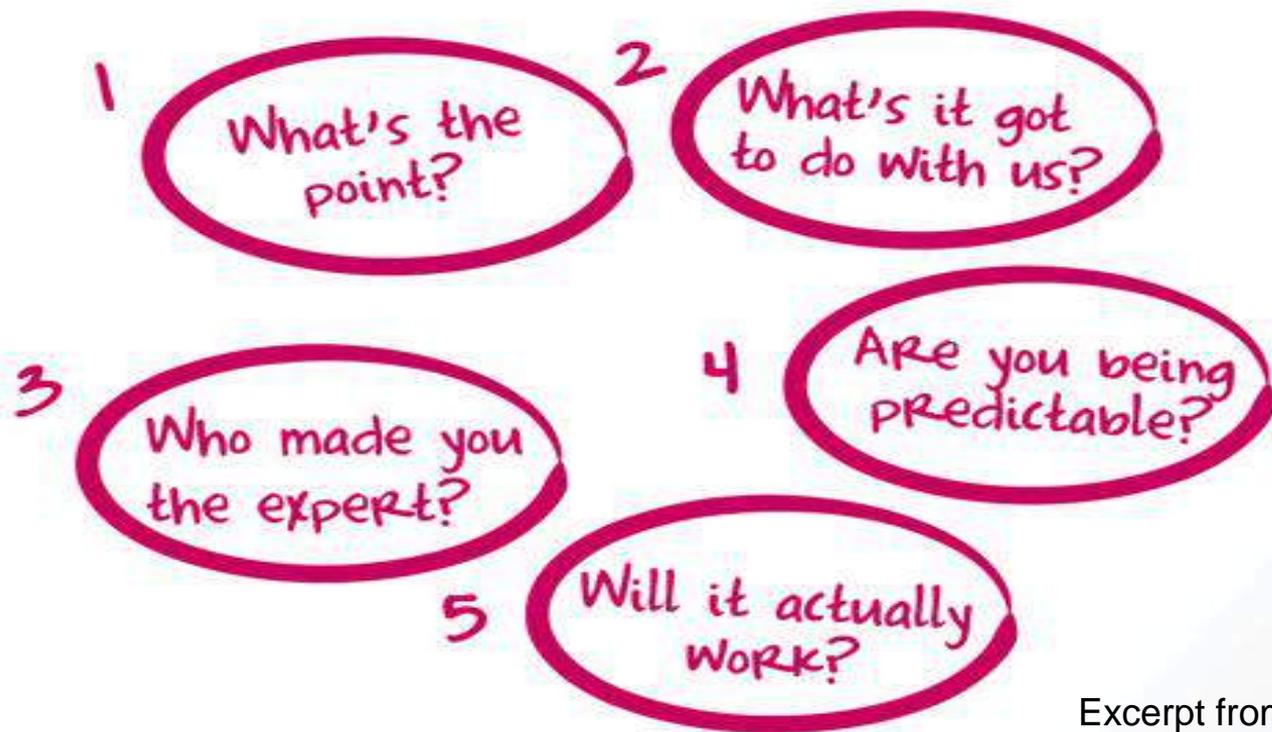
- Writing about your research
- Media skills training

Policy & Public Affairs

A chance to share knowledge with policy makers and government

- MP Pairing Scheme
- Policy Primer Scheme
- Policy Secondment Scheme

Ask yourself questions



Excerpt from guidance to policy officials in DfE

Principles for good evidence synthesis for policy

Consider many types and sources of evidence and their relevance

Use a range of skills and people

Involve policymakers and be relevant and useful to them



Use the most representative and largest feasible body of evidence

Recognise and minimise bias

Be independently reviewed as part of a quality assurance process



Clearly describe the research question, methods, sources of evidence and quality assurance process

Communicate complexities and areas of contention

Acknowledge assumptions, limitations and uncertainties, including any evidence gaps

Declare personal, political and organisational interests and manage any conflicts



Be freely available online

Be written in plain language

Be available in a suitable timeframe



Engaging with parliamentarians



Engaging with parliamentarians

Build relationships with parliamentarians

- Work with informal groupings of parliamentarians
- Hold events at political party conferences
- Engage with party policy development
- Engage with the influencers



Viewpoints

How does the UK become the world's most advanced digital society?



“ We should aspire to be the most advanced digital society in the world ”

Tom Watson

3 comments



“ We can't just pull content down and think we've done our job ”

Sajid Javid

3 comments



“ Technology is now fundamental to everybody's wellbeing and success ”

Dr Sue Black

3 comments



“ Cybercrime is unique – it's morphing and changing like no other crime ”

Peter Goodwin

3 comments

Share knowledge and understanding

Pairing scheme

- Give policymakers and research scientists an opportunity to experience each other's world.
- Each year 30 research scientists are paired with UK parliamentarians and civil servants. They learn about each other's work by spending time together in Westminster and the researcher's institutions.
- Those taking part gain an insight into how research findings can help inform policy making, and come away with a better understanding of how they can get involved, including the challenges and complexity of doing so.



Engaging with the public



**Public engagement
triangle**

**Communicate
(inform, inspire)**

**Public
engagement
with science**

Where 'science' includes engineering,
technology, mathematics and medicine.

Listen

Collaborate

Policy topics

Genetic technologies

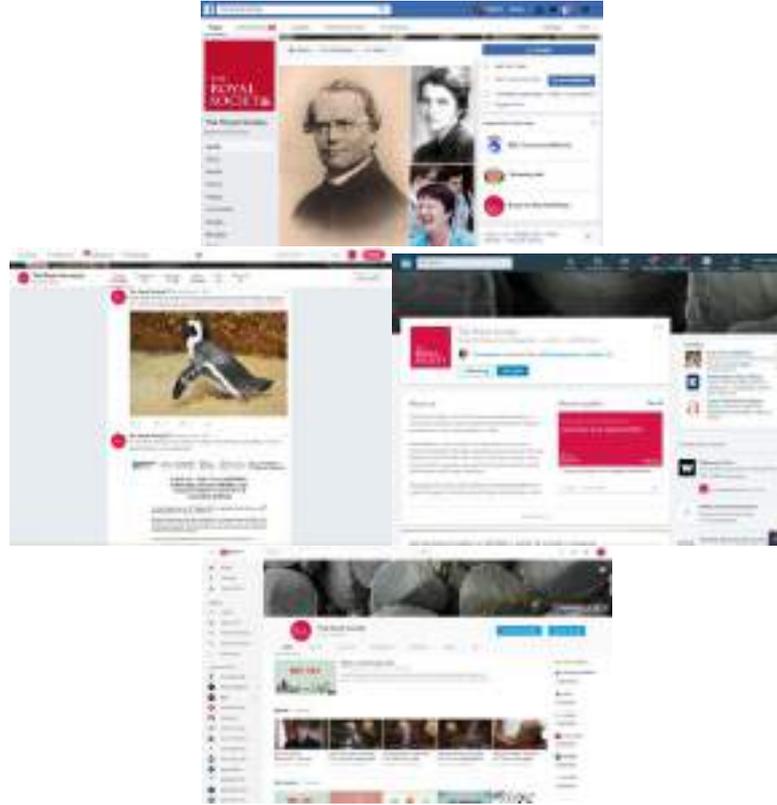


- Joint project with policy team
- Programme of public dialogue on genetic technologies – people, animals and plants.
- Major content focus of Tomorrow's World partnership
- Explainers – joint film with the Wellcome Trust on gene editing

Our channels



RoyalSociety.org



Social media



E-Marketing

**Making content
available and
accessible**

**Data and AI:
an example**



Some milestones in UK public debate and decision-making on AI and governance of data use

Academies



Public dialogue on Machine Learning at 4 locations across UK



Interim findings shared with government
Sustained Parliamentary engagement
Science and the Law seminar on machine learning



Political and Parliamentary



Data Protection Bill debates

Government and other



Announced Centre for Data Ethics and Innovation to advise government and regulators; with new investment in AI skills pipeline

2016

2017



Announces new Convention on data ethical foresight

Range of resources to support public dialogue and engagement

What is machine learning?



Interactive infographic

Machine learning in the world around you



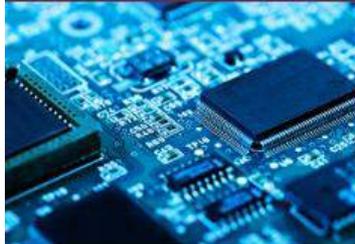
Interactive infographic

Our machine learning report



Read more about the report launch

About the project



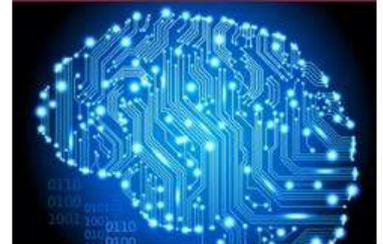
Governance and goals

Find out more



Explore developments in machine learning and AI

Videos and background information



Explore multimedia resources

**The Royal Society's
machine learning
project**

expertise and
engagement

Digital interactions:

60,000

Face-to-face encounters:

15,000

Dialogues and survey:

1,000

Practitioner participation:

500

Working group

15

Science and the law



Lord Neuberger, Former President of the Supreme Court



“...law and lawyers can and should provide the framework within which science and scientists operate. The rule of law is absolutely fundamental to a civilised society, and particularly in the light of the far-reaching and fast changing developments in so many areas of scientific endeavour, it is essential that scientists know the identity of the rules and the location of the legal boundaries appropriate to their work. And it is equally essential that lawyers are kept au fait with scientific developments, as the law needs to keep pace with technological developments.”

A talk by Lord Neuberger PC FRS, former President of the UK Supreme Court, at the Royal Society exploring ‘Science and Law: Contrast and Cooperation’ in November 2015.

Brain Waves project



royalsociety.org/topics-policy/projects/brain-waves/responsibility-law

Science and the law programme



Lord Hughes

The Royal Society's science and the law programme;

- Brings together scientists and members of the judiciary to discuss and debate key areas of common interest and to ensure the best scientific guidance is available to the courts.
- Supported by senior members of the Judiciary including Lord Hughes, Justice of the Supreme Court, and the Judicial College, the national training institution for all judicial office holders.
- Made possible through the generous support of the Dana Foundation.

THE
DANA
FOUNDATION



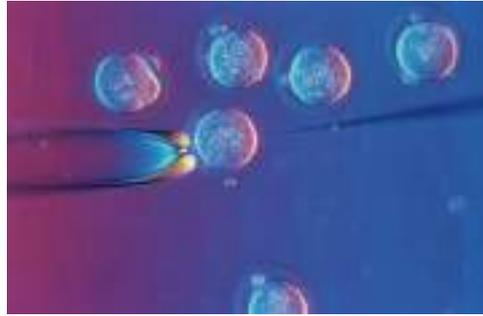
JUDICIAL
COLLEGE

Seminars

- In partnership with the Judicial College, we host three seminars a year for senior judges on scientific topics relevant to court proceedings.
- Each seminar aims to foster a deeper understanding of science by lawyers and vice versa and is attended by up to 70 senior judges, barristers and scientists.
- Presentations are given by leading Scientists and Judges and offer a space for in-depth discussion of the legal issues and scientific advances of the topic at hand.
- Topics have included Memory in Testimony, Uncertainty and Probability, Mental Capacity, Pain, Machine Learning, and Substance Addiction.



Future seminars



Genome editing in humans
(1 March 2018)



Robotics (2018)



Causation (2018)

Development and training

In partnership with the Judicial College, we have created a programme of seminars, lectures, CPD training and other meetings to bridge the gap between science and the law including:

- A series of regional lectures under the College's Academic Programme for both court and tribunal judges. Lectures have been given to date on:
 - Fact and fiction in brain imaging
 - What makes a decision autonomous
 - Techniques of DNA analysis
- A pilot CPD seminar led by Sir David Spiegelhalter OBE FRS for over 160 Circuit Judges and Recorders as part of the Judicial College criminal training prospectus.
- We are working with the College to develop further CPD seminars and talks as part of their professional development programme.



Judicial primers project

- A unique collaboration between members of the Judiciary, the Royal Society and the Royal Society of Edinburgh.
- Designed to assist the judiciary when handling scientific evidence in the courtroom.
- Written by leading scientists and members of the judiciary, peer reviewed by practitioners, and approved by the Councils of the Royal Society and the Royal Society of Edinburgh.
- Presents an easily understood and accurate position on the scientific topic in question, as well as considering the limitations of the science, challenges associated with its application and an explanation of how the scientific area is used within the judicial system.
- Hard copies distributed to courts in England and Wales, Scotland and Northern Ireland through the Judicial College, the Judicial Institute, and the Judicial Studies Board for Northern Ireland.



Judicial primers project

- The first two primers on Forensic DNA analysis and Forensic gait analysis were published on 22 November 2017.
- Future primers – statistics and collision analysis.



Any questions?

Principles for good evidence synthesis for policy

Consider many types and sources of evidence and their relevance

Use a range of skills and people

Involve policymakers and be relevant and useful to them



Inclusive

In most instances, an inclusive evidence synthesis process that involves policymakers throughout – from the design of the research question to the interpretation of findings – is most likely to yield important policy insights. It also helps identify the range of evidence types, sources and expertise that are most relevant. A team of contributors should have the necessary skills for the task and could comprise some or all of the following: policymakers, practitioners, subject experts, statisticians, experts in databases and search terms, objective writers (usually non-subject experts), and independent reviewers who have not been directly involved in the process. Policymakers may be involved to a lesser extent in the design of the research question if the aim is to scan the horizon for future priorities, or to synthesise evidence on a topic that is yet to attract major policy interest.

Use the most representative and largest feasible body of evidence

Recognise and minimise bias

Be independently reviewed as part of a quality assurance process



Rigorous

Evidence synthesis should aim to minimise bias and consider the totality of evidence on a topic within the timeframe and with the available resources. Researchers should be as comprehensive as possible in identifying all relevant evidence, before critically appraising its quality and then analysing it in a rigorous manner. Many of the principles outlined help to minimise bias, or to disclose or explain any potential bias.

Clearly describe the research question, methods, sources of evidence and quality assurance process

Communicate complexities and areas of contention

Acknowledge assumptions, limitations and uncertainties, including any evidence gaps

Declare personal, political and organisational interests and manage any conflicts



Transparent

Evidence synthesis that is transparent is likely to be more rigorous, credible, replicable and useful. A clearly described study design should include the search terms used, the databases and other evidence sources considered and when they were accessed, and the inclusion criteria (which studies were and were not included and why). This makes the synthesis more useful both in its own right and as a basis for undertaking further synthesis. In addition, explicitly acknowledging the complexities of the argument, areas of strong consensus and areas of contention – particularly where there are fundamental disagreements within the project team – is useful for a policymaker attempting to interpret the findings, and is important to inform evidence-based public debate more widely.

Be freely available online

Be written in plain language

Be available in a suitable timeframe



Accessible

Good evidence synthesis should be both useful and used. To ensure its usefulness, a short summary of the synthesis should be written in plain language by an objective writer who is experienced in presenting information clearly and concisely. To ensure it is used, synthesised evidence should be made available in time to contribute to the decision making process. The full text and search terms should be published in an open access repository to allow the synthesis to be extended, reproduced or updated in light of new evidence.

Science in Public Life

While it has specific programmes on Science and the Law, engaging with Parliament and the Public, much of what the Society does elsewhere is also building long term capacity for public debate

- People: giving young scientists opportunities to learn about public engagement and about science in government and senior scientists the opportunity to discuss the issues of the day with senior public figures in government, finance and industry. Our first Policy Associates are now completing their terms in three different government departments
- Knowledge: Creating accessible and authoritative evidence for multiple audiences; as well as the judicial primers, we publish evidence syntheses on topics from carbon capture to deep ocean resources and are about to publish Principles to promote good evidence synthesis more widely
- Frameworks: promoting policies that support scientists who wish to engage with public and government debate