Tackling ethics and risks of innovative research

The Government’s Industrial Strategy encourages cutting-edge research. There is a need for updated regulation of research ethics to address potential risk scenarios.

Policy implications

- Regulation on research ethics needs to be updated to address new risk scenarios.
- Lessons can be learnt from successful regulation in other countries. For instance, USA and Germany have adopted a top-down approach in regulating life sciences, while others (such as the Netherlands) have adopted a bottom-up approach.
- UK Research Councils, Innovate UK and the Royal Society could be invited to explore options for a Code of Conduct and introducing the concept of responsible innovation into science education.
- Common factors between risks of different technologies, with similar counter-measures, should be identified – linked to the National Risk Register.
- Lessons from the work of FCO’s Arms Control and Disarmament Research Unit could be used to facilitate risk discussion and proposals amongst scientists, politicians, civil servants and lawyers.

About the research

The launch of the Government’s Industrial Strategy signals increased policy emphasis on developing the UK industrial base, key technologies and innovative science. Cutting-edge research presents new opportunities and challenges – in areas including synthetic biology, artificial intelligence and geoengineering, with an inherent potential for risk.

At the same time established processes of regulation are becoming increasingly outdated, and the constraints on ethical and legal governance are being loosened by the ‘outsourcing’ of research and development – due to globalisation, privatisation and ‘citizen science’ outside of traditional research institutions.

In June 2016 the Partnership for Conflict, Crime and Security Research (PaCCS) convened a group of academics, policymakers, technologists and engineers to discuss findings from the PaCCS Science and Security research programme. The research explores ways of countering risks that emerge from future developments in science and technology, and the influence of ethical, societal, economic and cultural factors.

The workshop focused on research insights into coping with potential risks of science and technology, especially in the defence and security sectors, and identified various ways of addressing these challenges.

Outdated regulation is not addressing emerging challenges. There is a time lag between the speed of research innovation and the slower pace of regulatory and policy development.
Key findings

- Scientists overall regard themselves as ethical, but they rarely understand the full spectrum of research risks.
- Researchers involved in the development of new capabilities don’t talk to each other enough about risks and responsibilities.
- The drive for innovation has shifted from governments to the private sector, fragmenting the ethical framework for research.
- Regulation can check irresponsible development but is often seen to block innovation. There is a lack of clarity about when regulators should intervene.
- Outdated regulation is not addressing emerging challenges. There is a time lag between the speed of research innovation (e.g., in synthetic biology and artificial intelligence) and the slower pace of regulatory and policy development.
- Ethical values differ between countries, and there is no single body setting international standards for potentially hazardous science. Developers can go to other countries to circumvent regulation.
- Media channels too often misrepresent research risks, and social media can enable new (often unreliable) opinion-formers to set the agenda. This can limit or stifle an informed public debate.
- ‘Citizen science’ could make matters worse, with private citizens increasingly having the means to develop hazardous products – raising the risk of science used for malign purposes.

The drive for innovation has shifted from governments to the private sector, fragmenting the ethical framework for research.