

The findings of a series of engagement activities exploring

# The culture of scientific research in the UK

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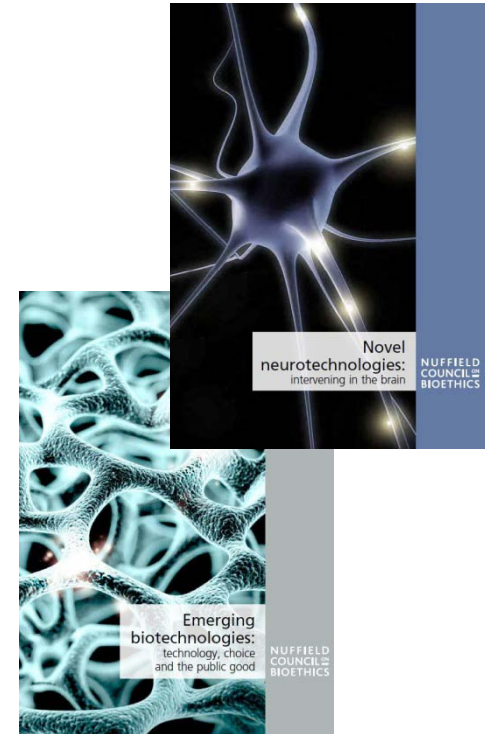
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NUFFIELD  
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# Project origins

- The culture of research must support high quality science
- Concerns about culture surfaced in previous Nuffield Council reports
- High profile cases of research misconduct
- Learned societies shared our concerns



# Project aim

*“To foster constructive debate among all those involved in scientific research about the culture of research in the UK and its effect on ethical conduct in science and the quality, value and accessibility of research”*

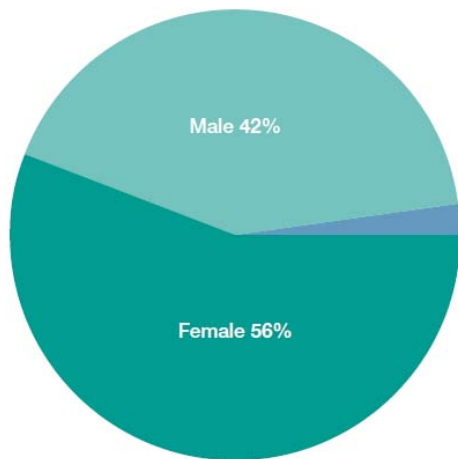
Oct 2013 – Steering Group set up to oversee project and provide connections with the scientific community

# Project activities: Online survey

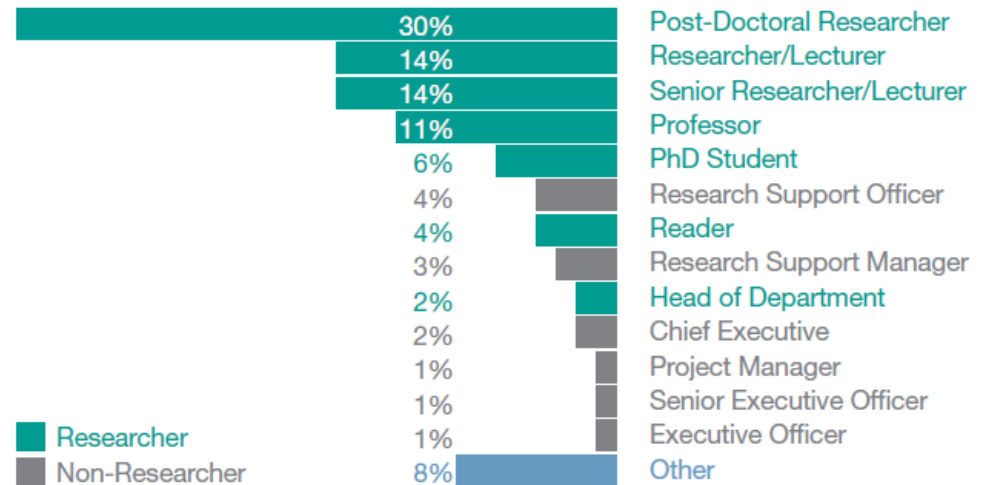
March-July 2014

26 questions

970 responses



Which of the following most closely matches your job title?<sup>§</sup>



# Project activities: Discussion events

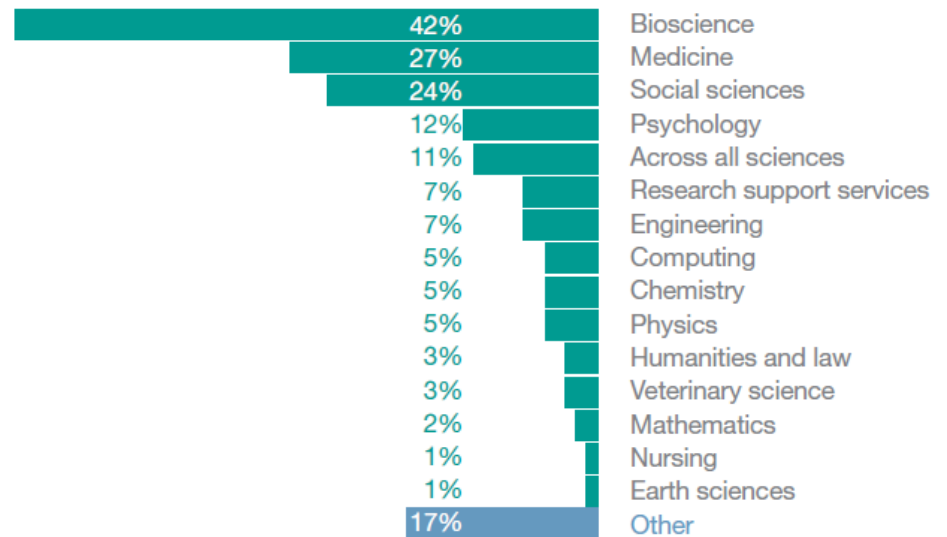
15 events

63 speakers

680 registered attendees



What area(s) of science do you work in, if relevant?\*



# **Project activities: Evidence gathering meetings**

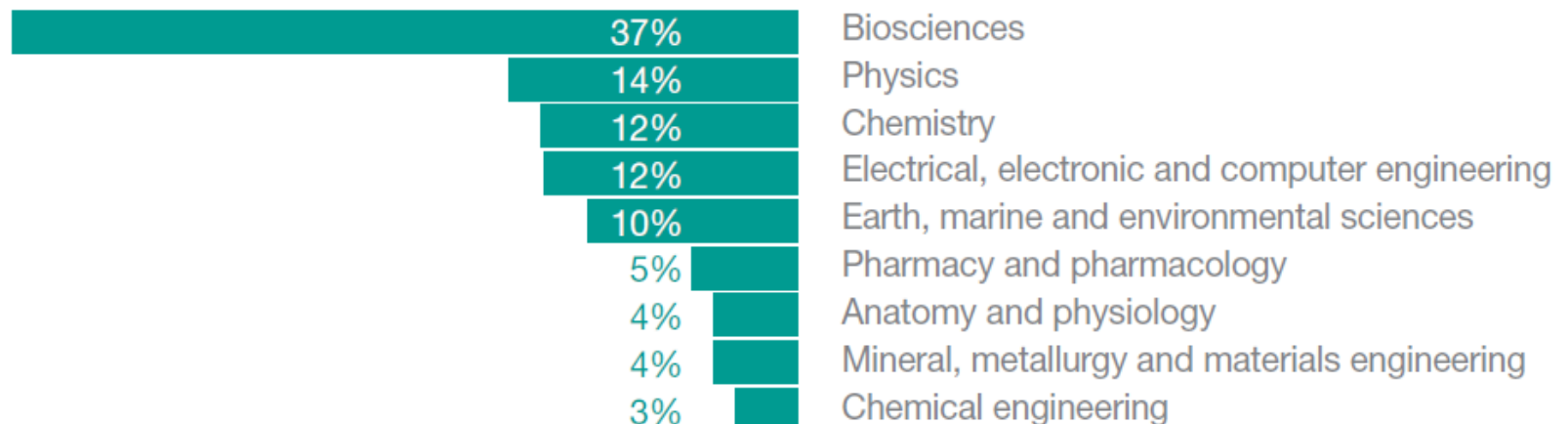
- 1) Funding bodies
- 2) Publishers and editors
- 3) Academics from the social sciences



# Reporting the data

- Self-selecting participants
- Bias towards researchers working at HEIs
- Large proportion of bioscience/medicine and early career researchers

**Percentages of staff employed in research roles in UK HEIs in 2011/12 in selected scientific disciplines<sup>4</sup>**





# What we heard





# What is high quality research?

High quality research:

1. Rigorous
2. Accurate
3. Original
4. Honest
5. Transparent

Scientists motivated by:

1. Improving their knowledge
2. Making discoveries for the benefit of society
3. Satisfying their curiosity

# Themes

Components identified by participants as being important for high quality research:

<b>Collaboration</b>	<b>Openness</b>
<b>Multidisciplinarity</b>	<b>Creativity</b>

# Competition

- Science is very competitive
- Competition can bring out the best in people (think more men than women)
- But it can also encourage
  - poor quality research practices
  - less collaboration
  - headline chasing

**94%**

*of survey respondents think applying for funding is very competitive*

# Issues relevant to research reproducibility

- Data sharing (including open data)
- Assessment of research
  - Journal and article metrics
  - Peer review
- Research integrity

# Data sharing

# 63%

*of survey respondents believe data sharing policies in the UK are having a positive or very positive effect overall on scientists*



- Respondents believe increased transparency and data sharing are:
  - facilitating dissemination of results
  - enabling research to be done more quickly and cost effectively
  - allowing greater scrutiny of findings
- Under 35s more positive than over 45s
- Concerns about commercial sensitivities and practical challenges

# Assessment of research: journal and article metrics

- Strong pressure to publish in high impact factor journals driven by perceptions of assessment criteria
- Concerns:
  - bias toward positive results
  - important research not being published or recognised e.g. negative findings or research that replicates or refutes others' work
- DORA is a positive development





# Assessment of research: peer review

**71%**

*of survey respondents believe the peer review system in the UK is having a positive or very positive effect on scientists*

- Reviewers need careful training and guidance, recognition and time
- New models being explored for fairer scrutiny e.g. open peer review

# Research integrity

**58%**

*of survey respondents are aware of scientists feeling tempted or under pressure to compromise on research integrity and standards*

- Researchers rushing to publish results may not conduct appropriate replications and scrutiny of their work

Need:

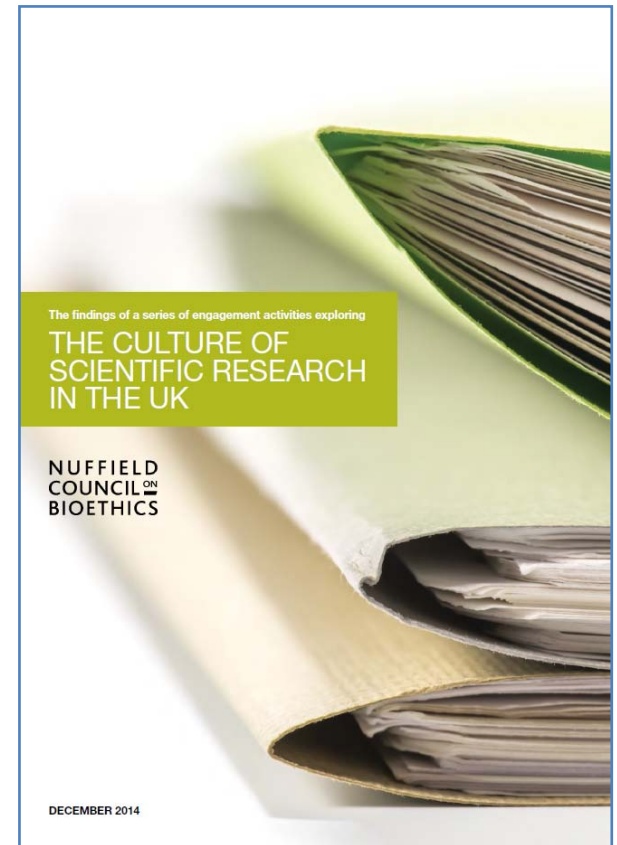
- Institutions to create conditions for ethical conduct
- Training in good research practice – time pressures

# Conclusions

- Competition is a double edged sword
- We are in an era of perceived hyper-competition
- The rules for winning are perceived to be disproportionately focused on a few measures that can incentivise poor research practice
- All the stakeholders view the rules for winning and/or their operation as out of their control
- A key outcome is the need to engage the whole community in acting together to identify and deliver solutions

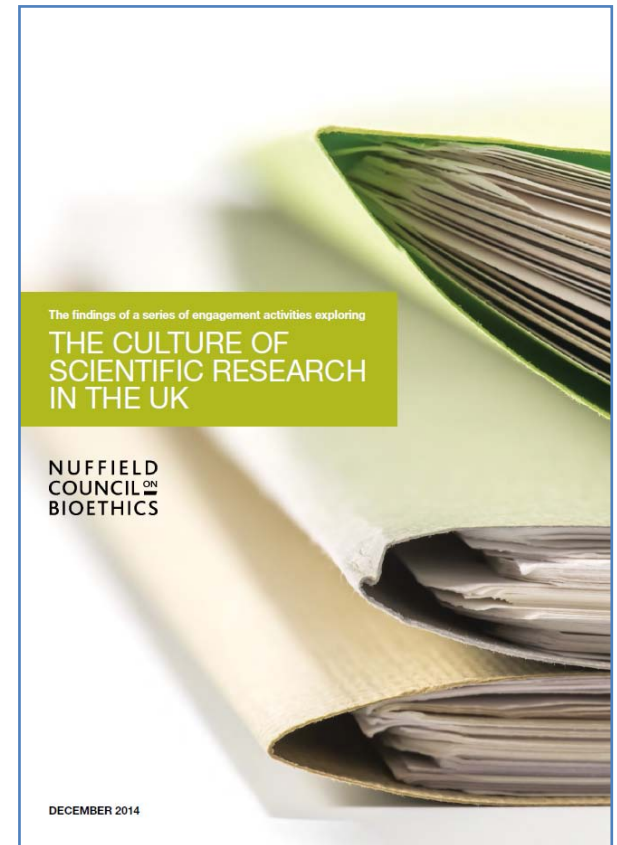
# Suggestions for action

- A collective obligation for all stakeholders
- Suggestions for action for:
  - funding bodies
  - research institutions
  - publishers and editors
  - professional bodies
  - individual researchers



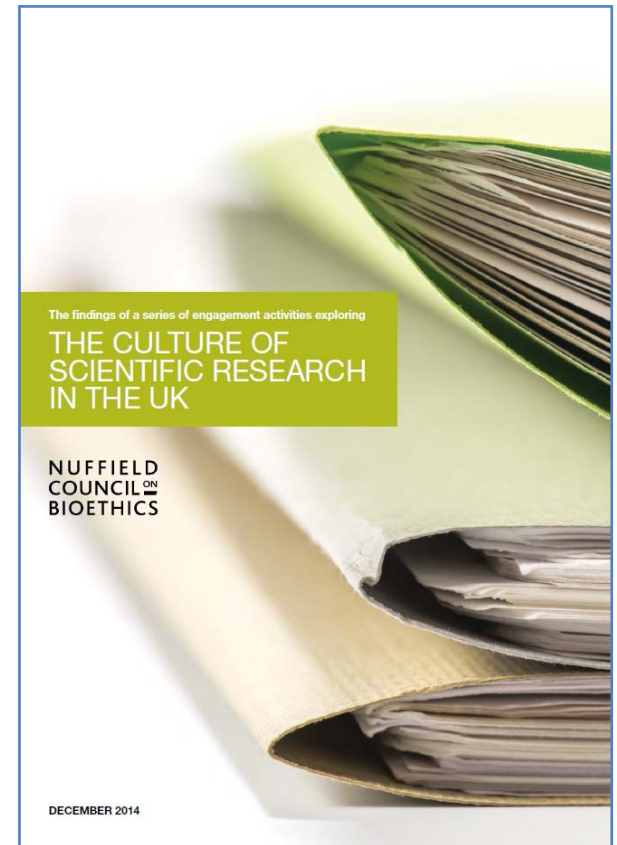
# Suggestions for action

- The assessment system
  - use a wide range of assessment criteria
  - clearly communicate and follow the assessment criteria
  - train and recognise assessors
  - communicate the outcomes of assessment process



# Suggestions for action

- The research environment
  - promote an open and collaborative research culture
  - embed research ethics
  - provide mentoring and career advice for researchers
  - promote an ethos of collective responsibility





[www.nuffieldbioethics.org/research-culture](http://www.nuffieldbioethics.org/research-culture)

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