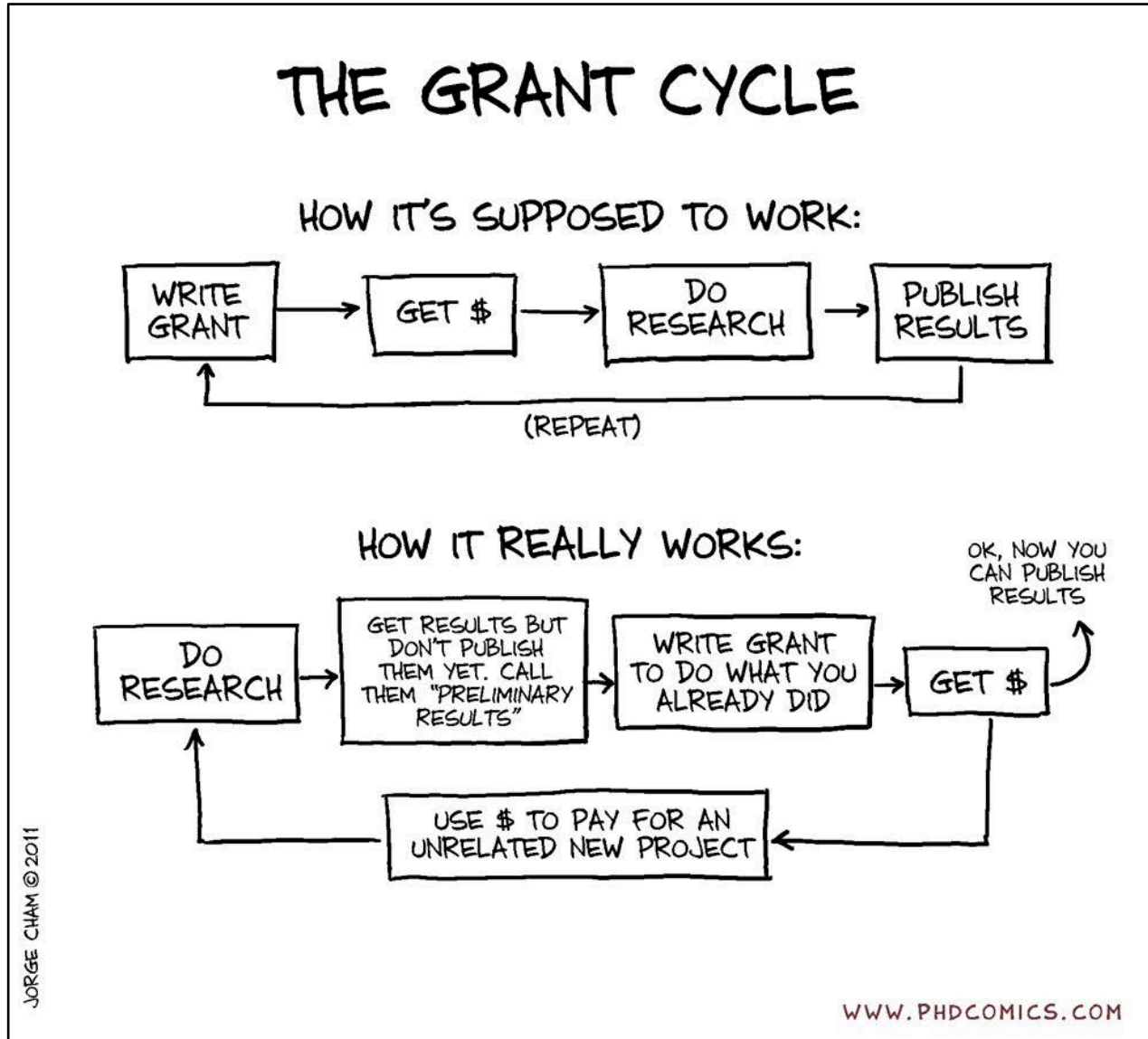


# Writing Competitive Grants and Fellowships



**Disclaimer:** this presentation is filled with text and bullet points, so is a good example of how not to give a science talk!

For tips and pointers on giving engaging science talks, see:

[http://maraisresearchgroup.co.uk/Presentations/Marais\\_GM\\_EffectivePresentation.pdf](http://maraisresearchgroup.co.uk/Presentations/Marais_GM_EffectivePresentation.pdf)

# Credentials

I've submitted many proposals. Some have actually been funded.

## **Fellowships:**

Fulbright, Harvard Centre for the Environment, UKRI-funded  
Researcher in Residence

## **Grants:**

Principal or co-investigator funded by ERC, UKRI, Defra, ESA

## **Reviewer:**

ERC, NERC, USEPA, NOAA, NASA, Irish and Canadian funding  
agencies, BELSPO.

*Much of my advice may be obvious; hopefully some of it is useful!*

# Sources of Funding

Most funding is public or private local, bilateral or regional funding

**Public funds** are typically administered by a national or regional research foundation: UKRI for the UK with its individual research councils NERC, STFC, EPSRC etc. and European Commission for the EU

**Private funds** can come from a range of sources: philanthropists, charities, industry, commercial entities, activist groups

Combination might be industrial/philanthropic funds administered by a public organization

**Bilateral:** UKRI partners with funding agencies in the US (NERC-NSF), India, South Africa, Brazil (Newton International Fellowships).

Funding can be scheduled and routine (annual, biannual), emergency (response to covid-19 or Brexit), commissioned by a charity, company, or special interest group

There also also **internal** University/College/Department funds: small pots, but high success rates

# Types of Funding

## Fellowships:

- All career stages
- Funds an individual (salary, travel, publications)
- Examples:
  - Postdoc fellowships to refine or expand on skills developed during PhD
  - Early, middle or advanced career researchers learn new craft in field
  - Exchange knowledge with public/private/third sector (secondment, residence)
- Must have vision for how it fits with career objectives and trajectory
- Can require co-application by host supervisor and institution
- Advantage to host is that these have low overhead rates

## Research Grants:

- Typically after postdoc when establishing own group to lead
- Funds a group (team members, travel, equipment, other resources)
- Must be disruptive to the status quo (“paradigm shifting”), risky yet feasible, high payoff if succeeds
- Examples: UKRI standard/large grants, ERC standard/consolidator/advanced grants
- Very competitive, low rates of success (can be <10%)
- Can be solicited (call issued) or unsolicited (apply anytime)

# Types of Funding (contd)

## **Tenders:**

- Prescriptive (requires specific task)
- Competing to be the lowest bidder, so limited resources and time
- Research methods should be designed to churn out results fast
- Always look for opportunities to sneak in some new science/knowledge
- Funded by agencies like ESA, Defra

## **Industrial/Enterprise Partnerships:**

- Typically results from new research innovation that can be monetized or that could help increase efficiency in industry
- Often industry led
- Competitive bids require there be an existing relationship between the lead industry and researcher
- Lots of funding available for this in the UK through Innovate UK

## **Studentships:**

- PI proposes a PhD project and hopes a viable candidate selects it (limited to UK/EU citizens)
- Often at the mercy of prospective PhD students to judge what makes a good PhD project and who should supervise that project
- Examples are regional UKRI doctoral training partnerships (DTPs)

# Effective Time Management

The process is protracted. Can take a year from announcement to outcome

## **Steps vary somewhat, but are typically:**

Announcement of Opportunity → Submission Deadline → Review Process →  
Panel Meeting → Response to Reviewers (interview or written) → Outcome

There can be additional steps like internal review for demand managed funding or expression of interest

Establish an application timeline with buffers for technical issues, compiling a budget, variable response time of co-applicants and research support teams

Sometimes support letters are required from partners, supervisor, host institution, co-applicants. To increase time efficiency, write a draft letter for them to edit, approve, and sign.

# Fit to Call

- Check **eligibility** (nationality, years since PhD, PhD needs to be awarded)
- Scrutinize the **scope** of the call and the remit of the funder to determine whether your research idea fits
- If you're eligible and your research fits the call, pour over the **guidelines** to ensure that the proposal fits these
- If you're not eligible and/or your idea is not suited to the funding agency, try another funding call
- Ensure you're the right person to do the research. It's risky to propose to engineer a new instrument if you're a modeller, for example. Exceptions are training as part of the proposal, including a team member to contribute, or applying for a training fellowship
- Formulate your research idea: create a powerpoint presentation, concept map or rough written draft (whichever works for you)
- Meet with **previous awardees** if feasible to confirm that your idea is a good fit and that the resources are sufficient to achieve the research
- Discuss with people in a related field you trust with your ideas and who will be a candid as a reviewer



# General Structure

Check the guidelines, use a template if available, obtain a sample of a successful past application

The proposal typically includes the following sections (order varies):

- **Summary** (similar elements as an abstract)
- **Introduction** (what's known, what isn't known and what's the impact)
- **Objectives** (clarity is key)
- **Investigator(s)** (demonstrate competency of team or individual)
- **Research Tools** (justification for instrument/model/dataset)
- **Work Programme** (work packages that includes individual tasks)
- Expected **Outcomes** (emphasis of scientific outcomes)
- **Timeline**
- **Budget** (with justification of resources)

Other sections that may be required: statements about data management, risks and risk mitigation, **diversity**, pathways to impact, public engagement

# Content and Style

This advice is by no means exhaustive!

Reviewers and panel members have limited time to read every word in the proposal. Ensure the proposal is clear and concise and that the important points jump out at the reviewer (repetition, map objectives/outcomes to scope of call)

Avoid acronyms and jargon that the panel and reviewers may not know

Prevent typos and grammar errors that impede effective communication and give the reviewer a poor impression of the proposal (did the applicant throw this together at the last minute?)

Tight page limits can be intimidating. Try avoid tricks with margins, font size and type, line spacing. Write succinctly, jettison unnecessary details. Edit, edit, edit!

A general rule from novice to experienced writers: there's always room for improvement. Edit, edit, edit!

If you have the luxury of time, put away the proposal for a few days to look at it with a fresh pair of eyes.

Many best practices for writing a paper are also applicable to proposal writing:  
<http://maraisresearchgroup.co.uk/Presentations/WritingAPaper.pdf>

# The Review Process

Write for the reviewer as you would tailor a presentation to suit an audience

Pre-empt reviewer comments. See the list of questions to ask yourself when reviewing your own or colleagues' proposals (slide 10):

<http://maraisresearchgroup.co.uk/Presentations/Marais-PeerReview.pdf>

Get research support staff and colleagues from a range of research backgrounds to review your proposal

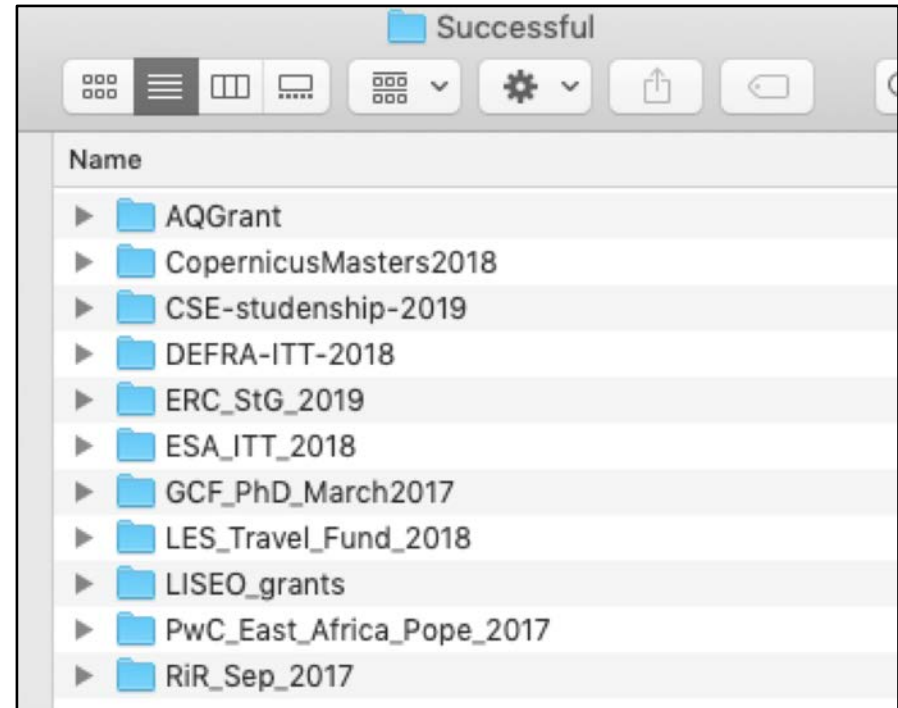
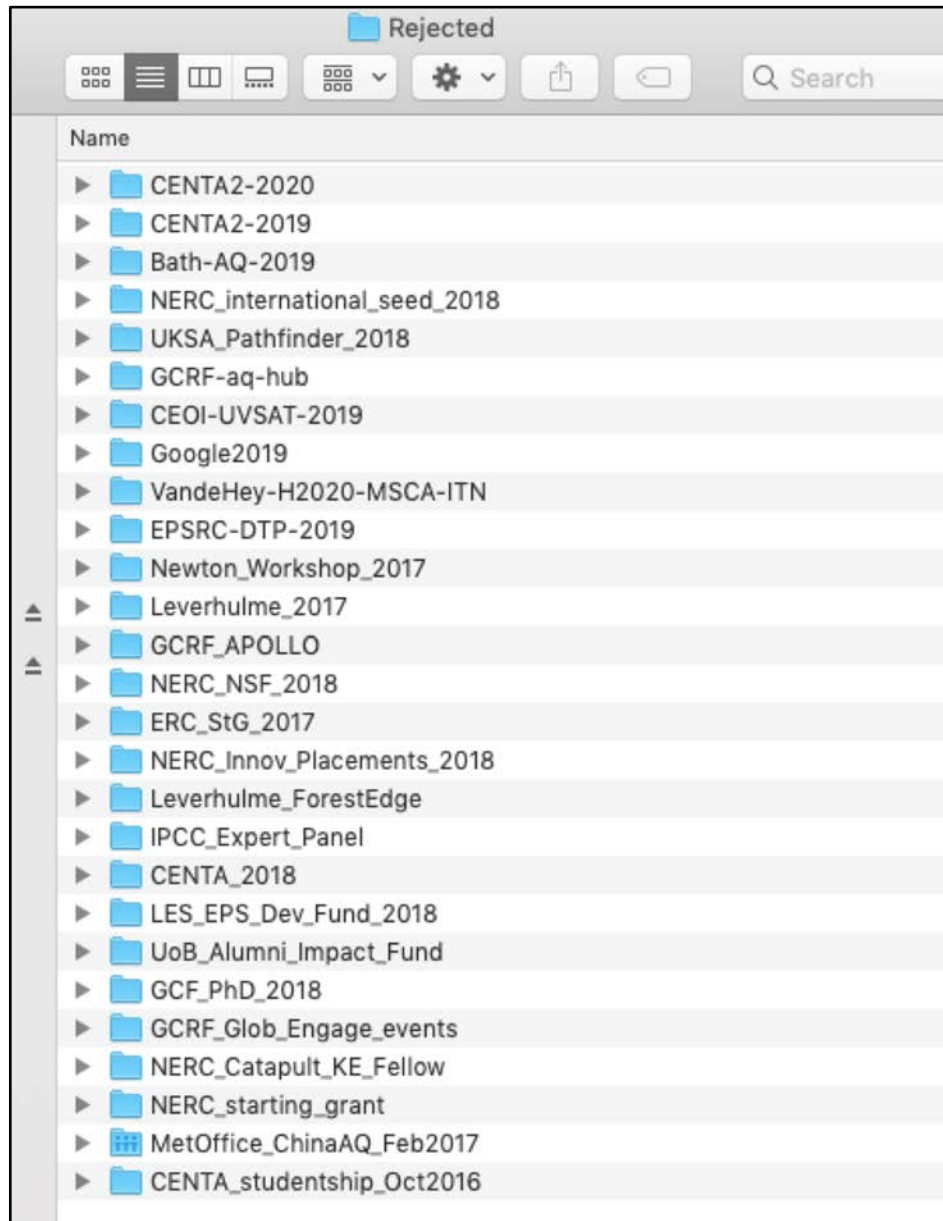
Review process is highly variable. Might go something like this:

Initial Review by Panel → External Expert Review (2-10) → Applicant Response (interview/written) → Panel Discussion → Decision by Panel or Funding Body

Reviewers are increasingly trained to recognize and counter unconscious bias, so if you're assembling a team, ensure there is representation of **early career researchers** and **gender balance** without it being tokenistic. Every team member must play a relevant role.

# Learning from Failures

If your proposal is rejected, welcome to the club!



My Rejection folder (left) far exceeds by Successful folder (above)

Go through the stages of grief, move on, learn from reviewer comments and resubmit to the same or a new funder

# How to Stay Informed of Opportunities

There are many ways to keep updated on funding opportunities.

Some include:

- University Research Services (website, mailing list)
- Research Council email lists
- Job site email lists, such as uk-met-jobs, es-jobs-net (mostly for advertising postdoc/faculty/PhD positions, but sometimes fellowships are also announced)
- Conference virtual and physical noticeboards
- Social media networks (outside my area of expertise!)
- Research communities or networks:  
GEOS-Chem, NCAS, NCEO, NASA, ESA, AGU, EGU, ESWN, STFC AQ Network

# Some Additional Resources:

[https://en.wikipedia.org/wiki/Research\\_funding\\_in\\_the\\_United\\_Kingdom](https://en.wikipedia.org/wiki/Research_funding_in_the_United_Kingdom)

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/438763/bis-15-340-relationship-between-public-and-private-investment-in-R-D.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/438763/bis-15-340-relationship-between-public-and-private-investment-in-R-D.pdf)

[http://ec.europa.eu/research/swafs/pdf/pub\\_gender\\_equality/report\\_on\\_implicit\\_gender\\_biases\\_during\\_evaluations.pdf](http://ec.europa.eu/research/swafs/pdf/pub_gender_equality/report_on_implicit_gender_biases_during_evaluations.pdf)

<https://erc.europa.eu/news-events/magazine/unconscious-bias-%E2%80%93-avoidable-or-inevitable>

<https://www.euroscientist.com/overcoming-unconscious-gender-bias-science-evaluation/>

Hidden Brain podcast on diversity in research:

<https://www.npr.org/2018/07/02/625426015/the-edge-effect>

Guardian article on impact of absence of diversity:

<https://www.theguardian.com/science/2019/may/31/sexist-research-means-drugs-more-tailored-to-men-says-scientist>

CV of failures idea: <https://www.nature.com/naturejobs/science/articles/10.1038/nj7322-467a>

Example of a CV of failures:

[https://www.princeton.edu/~joha/Johannes\\_Haushofer\\_CV\\_of\\_Failures.pdf](https://www.princeton.edu/~joha/Johannes_Haushofer_CV_of_Failures.pdf)