Evaluating and measuring climate research impact

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Grantham Institute for Climate Change

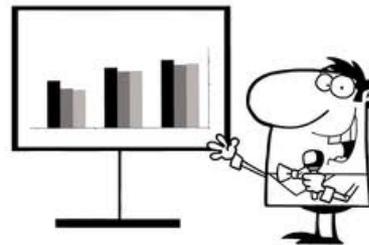# Structure

- **1) Grantham Institute HEFCE Impacts Project**

- **2) Defining research impact**

- **3) Types of impact and how-to pointers**

  - academic influence   - non-academic influence

- **4) Brainstorming session on types of impact and aims of research**

Grantham Institute HEFCE Impacts Project

➢ *Aim to assess the viability of the indicator collection system for analysing research impact, via a sample of data for individual academics, previously held events and written outputs*

➢ *Examine research impacts and interactions trial data collection exercise.*
- *(A) influence of individual researchers, (B) measuring the impact of articles and publications; (C) policy and events interactions; these three themes feed into the last analysis segment; (D) on the research impact of the Grantham Institute written outputs.*

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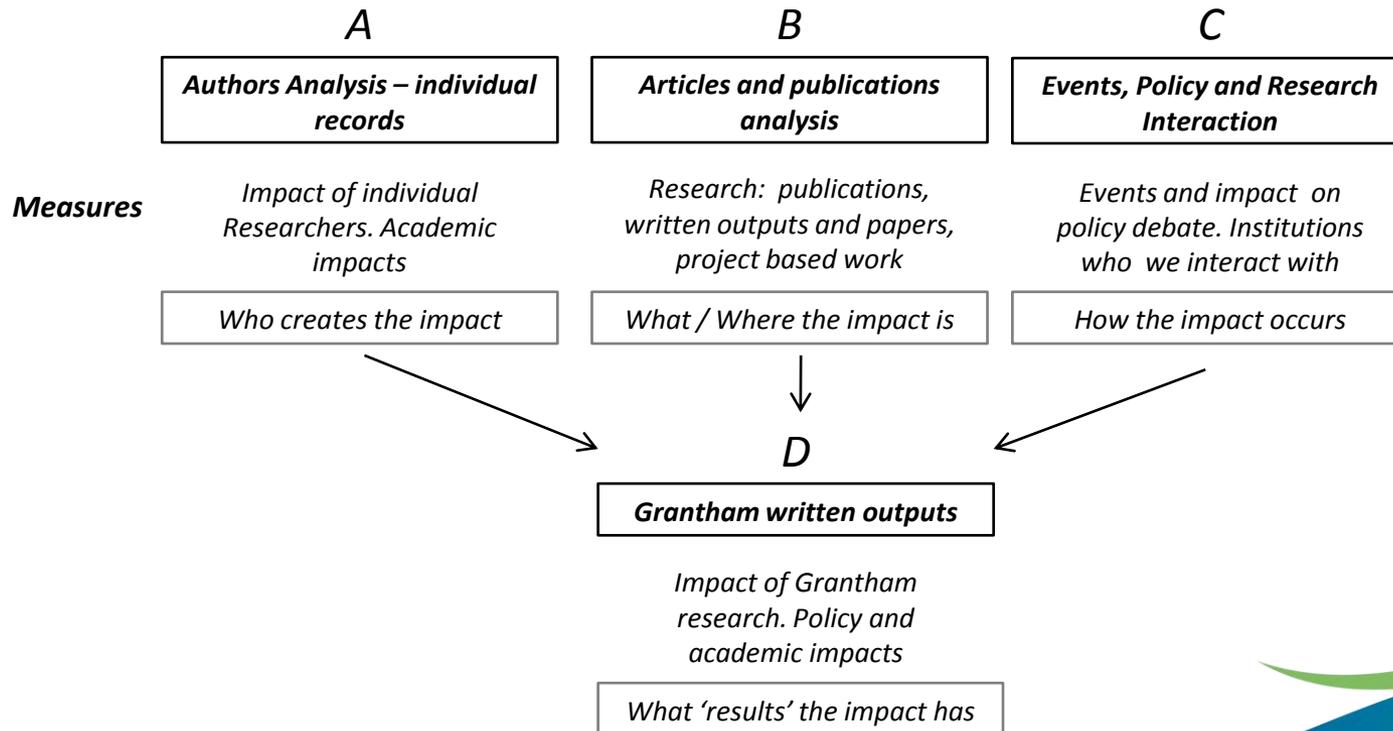
Defining Research Impact

Research Impact
'as a recorded or otherwise auditable occasion of influence from academic research on another actor or organization'

- Academic impact
'influence is upon another researcher, university organization or actor' Citation indicators

- **External impact**
'auditable influence is achieved upon a non-academic organization or actor in a sector outside the university sector itself – for instance, by being used by a business corporation, a government agency, a civil society organization or a media or specialist/professional media organization'

LSE Handbook: Maximizing the impacts of your research (2011)
http://blogs.lse.ac.uk/impactofsocialsciences/the-handbook/

"I'll be whatever what you want me to be"
Lester Burnham, American Beauty

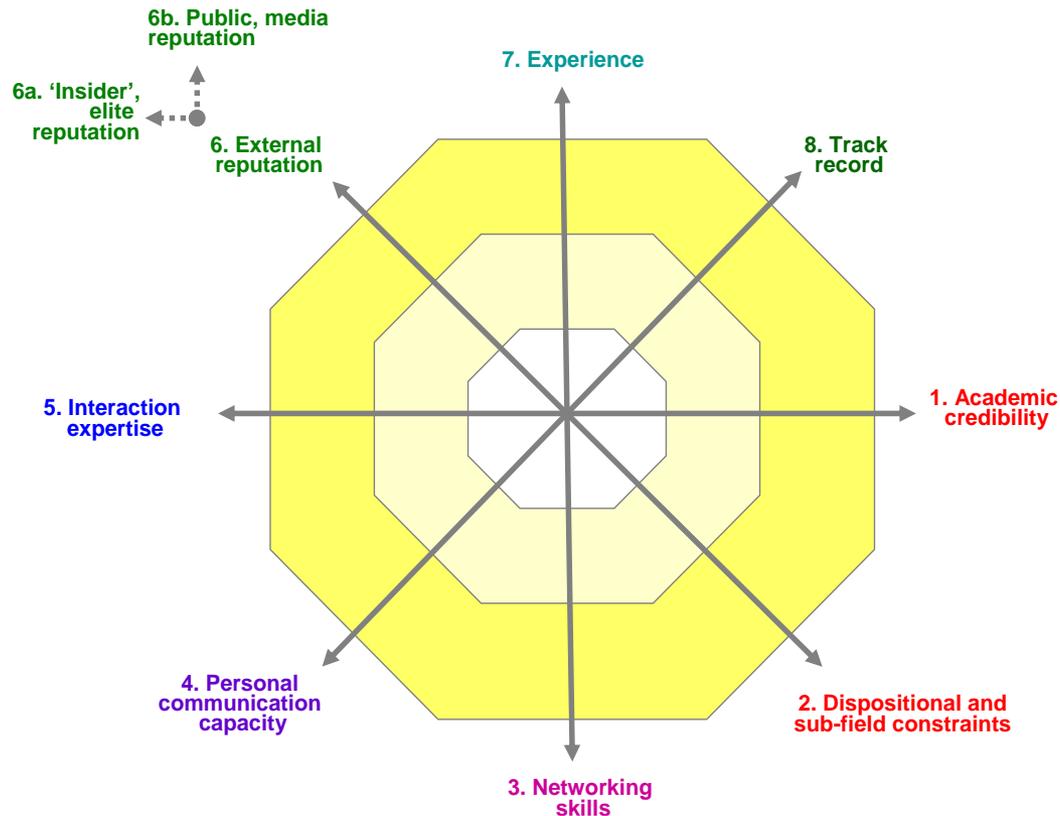Grantham Institute
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Immediate problems with impact

- Research impact is an occasion of influence ... <u>Not</u> same thing as the outcome of that influence.

- Social outcomes due to many influences - verified causal links from one author / paper to social outcomes cannot realistically be made or measured.

- Research impact not a claim for a clear-cut social welfare gain: i.e. Not an automatic good for society.

- How to measure? Collecting data on impact of papers very labour intensive and un-reliable

- Presentation is not a 'how to guide' – some suggestions but more information in LSE Handbook on Maximizing the impacts of your research (2011)

http://blogs.lse.ac.uk/impactofsocialsciences/the-handbook

Types of research impact

A typology of key factors shaping the external influence of academics and university researchers

6b. Public, media reputation

7. Experience

6a. 'Insider', elite reputation

6. External reputation

8. Track record

5. Interaction expertise

1. Academic credibility

4. Personal communication capacity

2. Dispositional and sub-field constraints

3. Networking skills

Key: *Low* *Medium* *High*

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Key measures of academic influence

Academic impact
'influence is upon another researcher, university organization or actor'

Citations

- *Citation indicators: Harzig rating of individuals (H-rating)*

A scientist has index h if h of his/her Np papers have at least h citations each, and the other (Np-h) papers have no more than h citations each. Measuring the cumulative impact of a researcher's output by looking at the amount of citation his/her work has received. Publish or Perish calculates and displays the h index proper, its associated proportionality constant a (from Nc,tot = ah2), and the rate parameter m (from h ~ mn, where n is the number of years since the first publication).
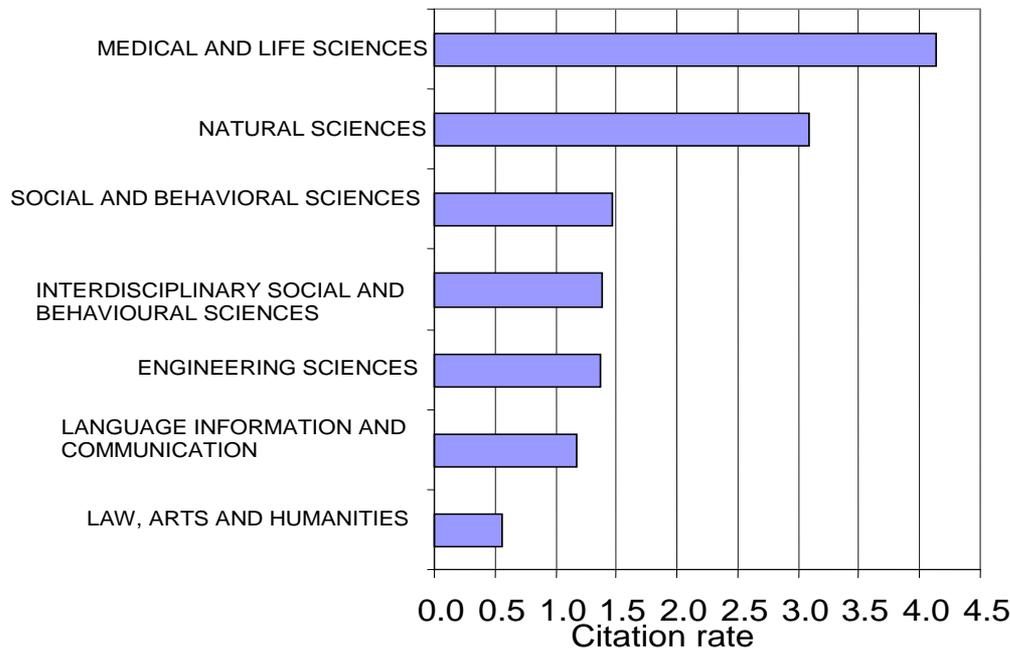
- *Google scholar and ISI web of science, Scius - ratings for papers*

References

- *reference, citation or discussion of a person or work or meme*
- *in a practitioner or commercial document;*
- *in the speeches or statements of authoritative actors;*
- *via inclusions or referencing or weblinks to research documents*
in an external organization's websites or intranets

Disciplinary differences

*Differences in the average aggregate citation rates between major groups of disciplines*

Horizontal bar chart titled "Citation rate" (x-axis 0.0 to 4.5):
- MEDICAL AND LIFE SCIENCES: ~4.1
- NATURAL SCIENCES: ~3.1
- SOCIAL AND BEHAVIORAL SCIENCES: ~1.5
- INTERDISCIPLINARY SOCIAL AND BEHAVIOURAL SCIENCES: ~1.4
- ENGINEERING SCIENCES: ~1.4
- LANGUAGE INFORMATION AND COMMUNICATION: ~1.1
- LAW, ARTS AND HUMANITIES: ~0.5

average aggregate citation rates between major groups of disciplines (that is, total citations divided by number of publications

- *Engineering*
  – *CCS, renewable energy technologies*

- *Physical Sciences*
  – *GIS, Oceanography*

- *Social Sciences*
  – *Geography, community projects*

- *Economics*
  – *demand side analysis, carbon trading*

Source: Centre for Science and Technology Studies (2007)

Types of publication

Hypothetical citations profiles over time for three main types of publication
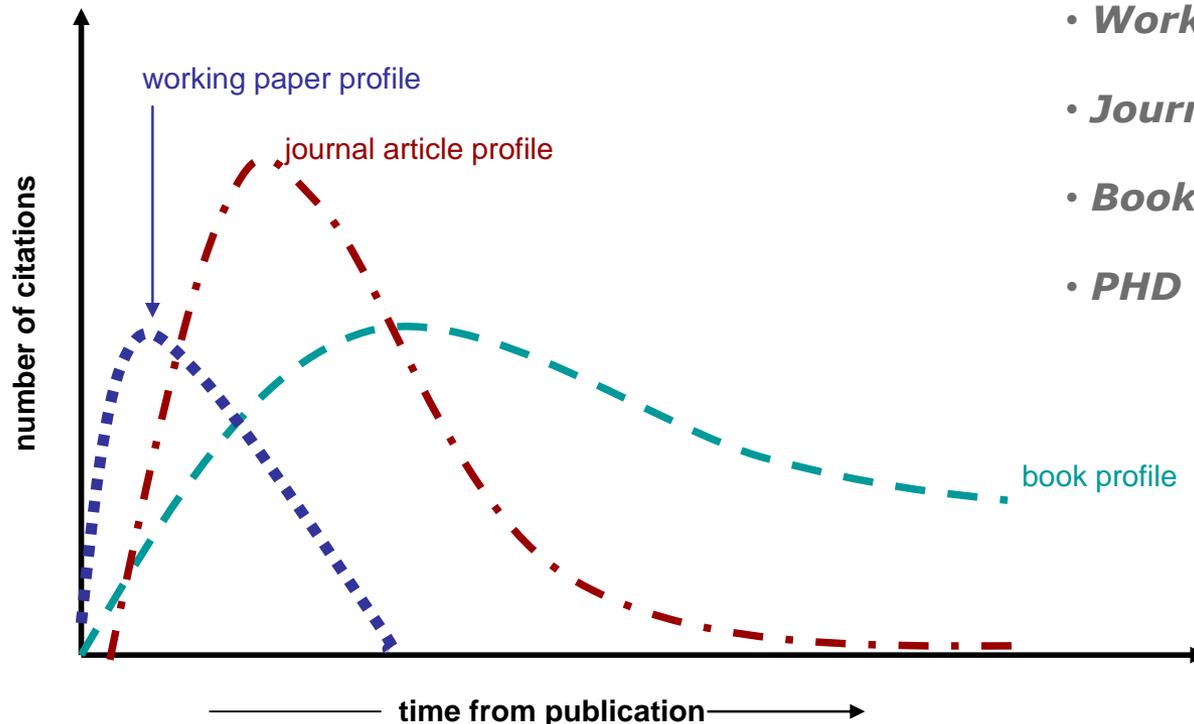
- ***Working Papers***

- ***Journal article / academic paper***

- ***Book chapter or contribution***

- ***PHD Report***

> ***Time from publication results in differing citation rate depending on type of output***

Tips for increasing citation rate

Essentials:

- Have a clear and accurate title on your paper and informative abstracts

- Insert keywords on your paper and web of science that are used within the existing literature

- Publish your working papers / PHD reports on own / institutional website

- Present your work at conferences and put abstracts / talks online.

Options:

- Partner with other organisations and co-publish reports on other websites to reach a broader audience. Work with co-authors and research teams

- Organise discussion seminars around substantial research pieces - webinars and presentations / briefings to other academics and government researchers

Good and bad practice for choosing article titles

Is your title:	Example *(and comment)*
• A full 'narrative title' that clearly summarizes the substance of what the article argues or what has been found out? (Very good)	'New public management is dead – Long live digital era governance' - *the whole argument of the paper in 10 words*
• An ambiguous title but with at least some narrative or substantive hints about your line of argument or findings? (OK)	'Modernist art – the gay dimension' - *probably highlights themes about homosexuality, but might deny them instead*
• A title that perhaps contains some cues as to the author's argument, but where you'd need to read the piece first to understand these hints? (Poor)	'One for All – the logic of group conflict' - *actually this is a book title about solidarity pressures in ethnic groups, (and not Alexander Dumas's 'The Three Musketeers' which it apparently references)*
• An overly general title that could lead to multiple conclusions or lines of argument? (Poor).	'The Economic Institutions of Capitalism' - *probably related to organizational /institutional aspects of economics*
• An interrogative title, albeit with some cues? (Poor – because there are many interesting questions, but far fewer useful or interesting answers).	'Is economic growth in endogenous?' - *why not actually tell us the answer? Is it 'Yes' or 'No', or 'A bit'?*
• An unspecific and hackneyed title that has been used many times already. (Very poor)	'Mill on liberty' - *could promote ' not another one' reactions*
• A title so unspecific that it could cover work in several different topic areas or even disciplines? (Very poor – should be rewritten to avoid possible 'confuser' meanings).	'Measuring power' - *this article could be sociology/ political science, or it could be in electronics/engineering.*
• A title that is almost completely formal or vacuous? (Very poor – should be redone).	'Beyond Economics' - *actually this is all about economics, while apparently claiming to not be.* 'Interpreting Social Behaviour' - *all social life is here*

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Abstracting

General structure of the abstract

How much information does the abstract give about	None	A bit	A lot	Suggested number of words (for a 300 word abstract)
Other people's work and the focus of previous research literature?				No more than 50-60 words
What is distinctive to your own theory/position or intellectual approach?				At least 50 words
Your methods or data sources/datasets?				From 50 words minimum to 150 maximum
Your bottom-line findings (i.e. what 'new facts' have you found? Or what key conclusions do you draw?				As many words as possible within your limit
The value-added or originality of your work within this field?				At least 30 to 50 words

Checking your abstract on Google Scholar

• Type your title in "double quotes" into Scholar and check against table below. Type 3-4 most distinctive words again and re-check

	Full title in quotes	Three or four most distinctive title words
How many items show up?	- None (good). - Many (poor).	- None (bad). - Very few (bad) - Modest number(good) - Lots and lots (bad) - it's an inverted U curve here.
How do most of the other references or items that show up relate to your topic and subject matter?		-Very close (good). -Close (OK). -Remote (bad). -Completely different topic (very bad).
Does the search show that you are using terms, phrases or acronyms that		- Have the same meaning as you are using (good).- Or have a number of different meanings from your sense (bad)

Note: Articles have compound identities because the journal title itself often gives many clues to what the work is about. Therefore article titles can be less distinctive than books. Your title must include some key words likely to be typed into search engines by potential readers.

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➢ *Following (?) academic impact ….*

…. non-academic impact
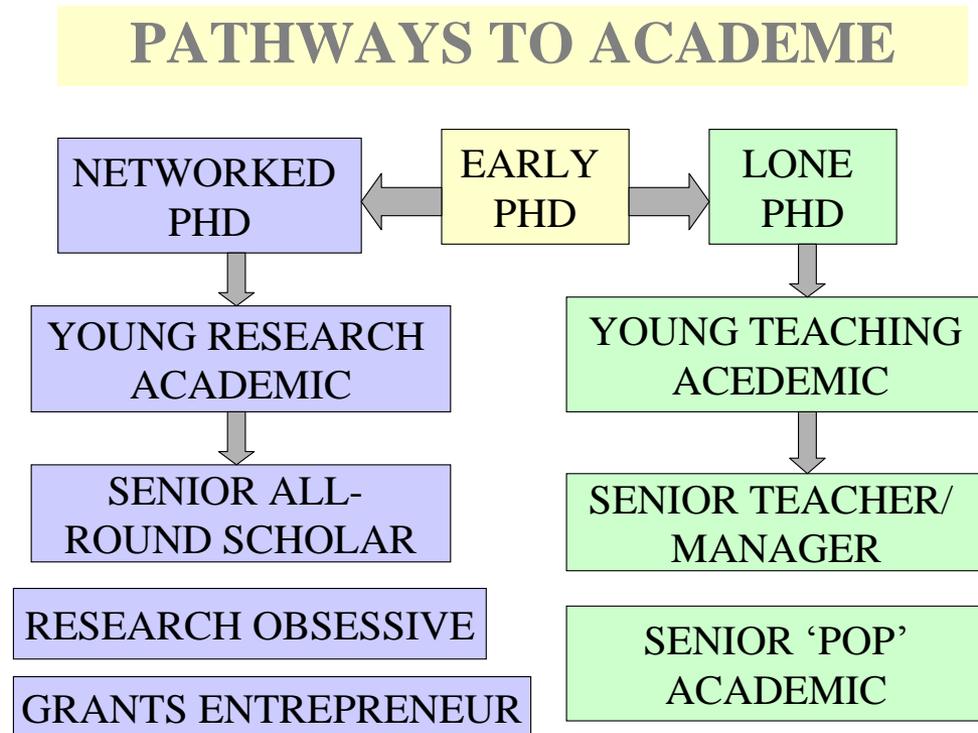
Key measures of non-academic influence

External impact

'influence is achieved upon a non-academic organization or actor in a sector outside the university sector itself – for instance, by being used by a business corporation, a government agency, a civil society organization or a media or specialist/professional media organization'

- reference, citation or discussion of a person or work or meme

- in a practitioner or commercial document;

- in media or specialist media outlets;

- in the records of meetings, conferences, seminars, working groups and other interchanges;

- in the speeches or statements of authoritative actors;

- via inclusions or referencing or weblinks to research documents in an external organization's websites or intranets; or

- in recorded subjective judgements or assessments, or reactive measures (such as survey results from non-academic respondents).

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Career progression and impact

➤ *Research-intensive and teaching-based pathways*

PATHWAYS TO ACADEME

| NETWORKED PHD | ← | EARLY PHD | → | LONE PHD |
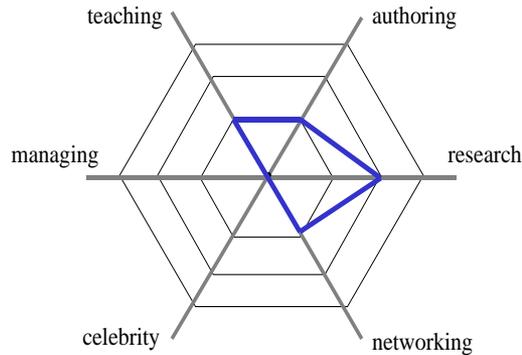
- NETWORKED PHD → YOUNG RESEARCH ACADEMIC → SENIOR ALL-ROUND SCHOLAR → RESEARCH OBSESSIVE → GRANTS ENTREPRENEUR
- LONE PHD → YOUNG TEACHING ACEDEMIC → SENIOR TEACHER/MANAGER → SENIOR 'POP' ACADEMIC
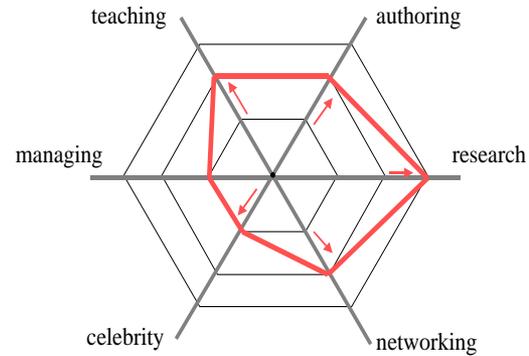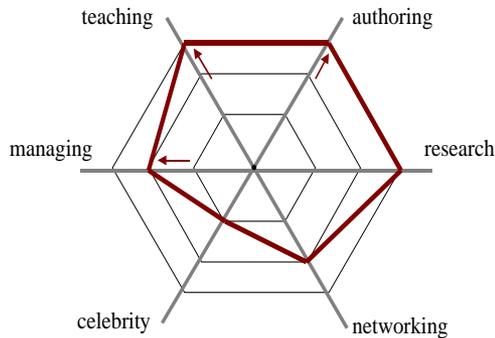
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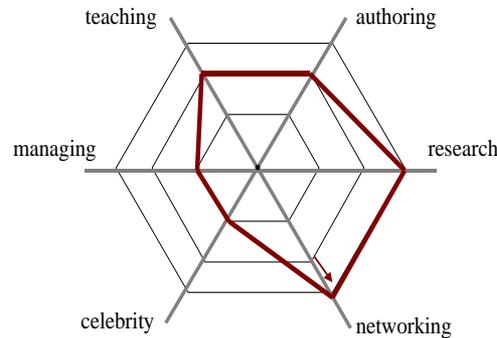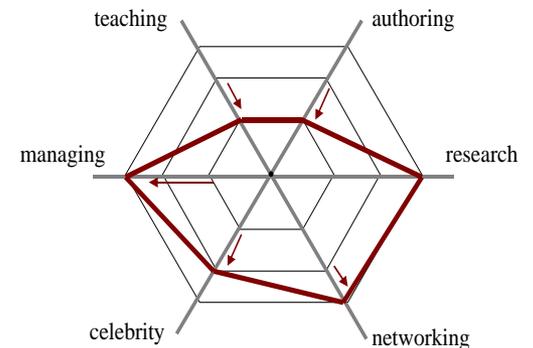
Teaching-track academics
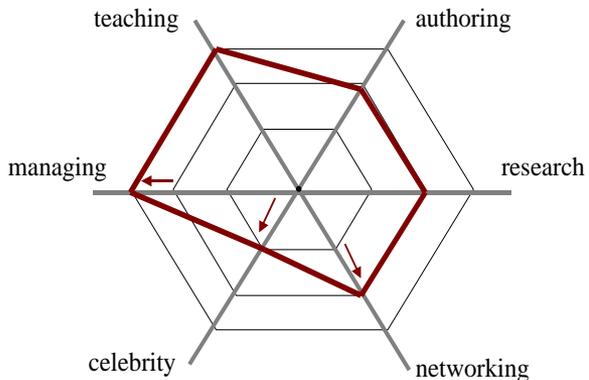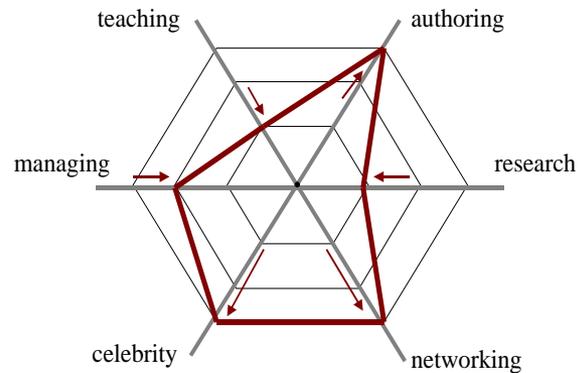
Tips for increasing external impact

Essentials:

- Publish on websites and networked sites – NERN, Sparks, energy newsletters

- Talk to 'the public' / MSc and undergraduate students as well as other PHDs. Discussion groups and open forums

- Attend conferences on your area of research and understand the community interactions and structure

Options:

- Create short blogs on the topic of research and current discussions

- Organise launch events around substantial research pieces – including project workshops, outreach seminars, and briefings to other academics

- Become involved with externally funded research projects – DECC, business, research consortiums – for example, Supergen

Thanks for listening

and not being tempted to ....

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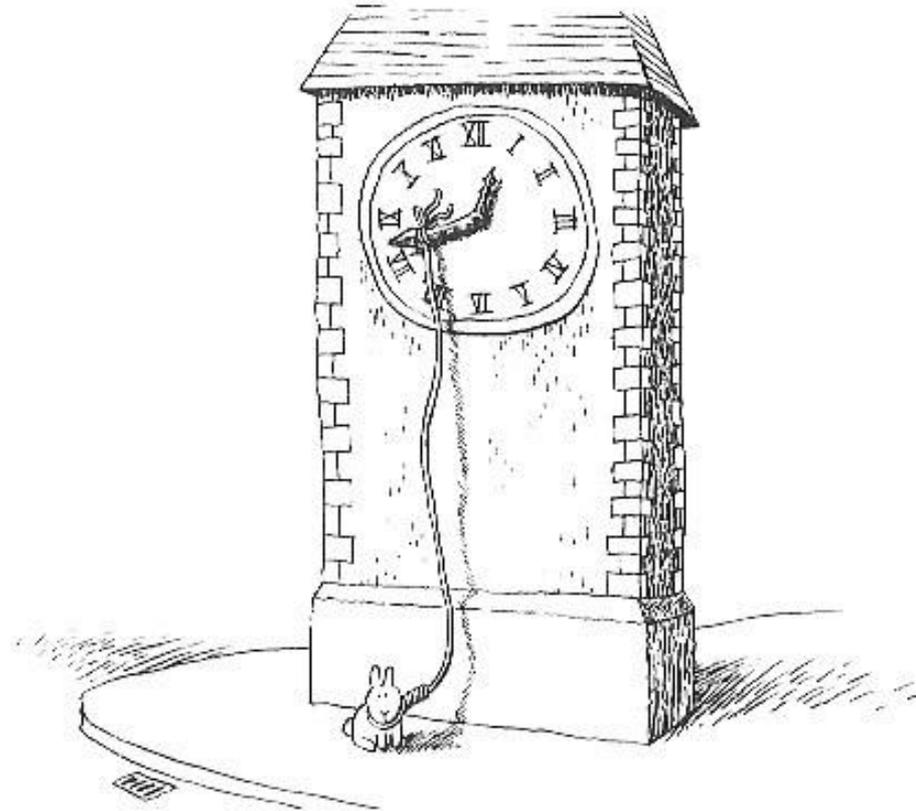
Brainstorm

Discipline

- *Engineering*

  – *CCS, renewable energy technologies*

- *Physical Sciences*

  – *GIS, Oceanography*

- *Social Sciences*

  – *Geography, community projects*

- *Economics*

  – *demand side analysis, carbon trading*

- *........*

Primary Outputs

- *Working Papers*

- *Journal article / academic paper*

- *Book chapter or contribution*

- *PHD Report*

- *Presentations*

- *........*