

Incentives to Encourage Scientific Web Contribution

(or)

Engaging the Public... While Keeping Your Job

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The Problem:

Agencies want to accomplish better outreach and engagement with no funding.

Scientists sacrifice their personal time to contribute to web and social media sites.

Today's Intent: Tie 'engaging scientists to web communities' with the pragmatics of research and funding?

What is 'Outreach and Engagement'?:

* Science blogging * contributions to FAQs * Wikipedia editing * participating in science forums * podcasts * being a guest at a museum * participating in technical web communities * ... *

Any science web participation outside of your institution's direct EPO channels.

Premise 1:

Science outreach = science funding & next-gen STEM

Premise 2:

Science on the web: it's there, are we?

Premise 3:

Citations are the primary currency of the research world.

Perspectives:

Each 100 words of newspaper coverage = +1 citation over following 4 years (Kiernan, Sci Comm, 2003)

"It is absolutely the duty of any scientist who does their research with public funds" (Squyres, NASA Mars Rover, 2005)

The most active popularizers are also the most productive. (Jensen, Sci Pub Pol, 2008)

"You can privately ridicule scientists who do more successful self-promotion but they will set the agenda for the public if you do not." (Campbell, CAPJournal, 2008)

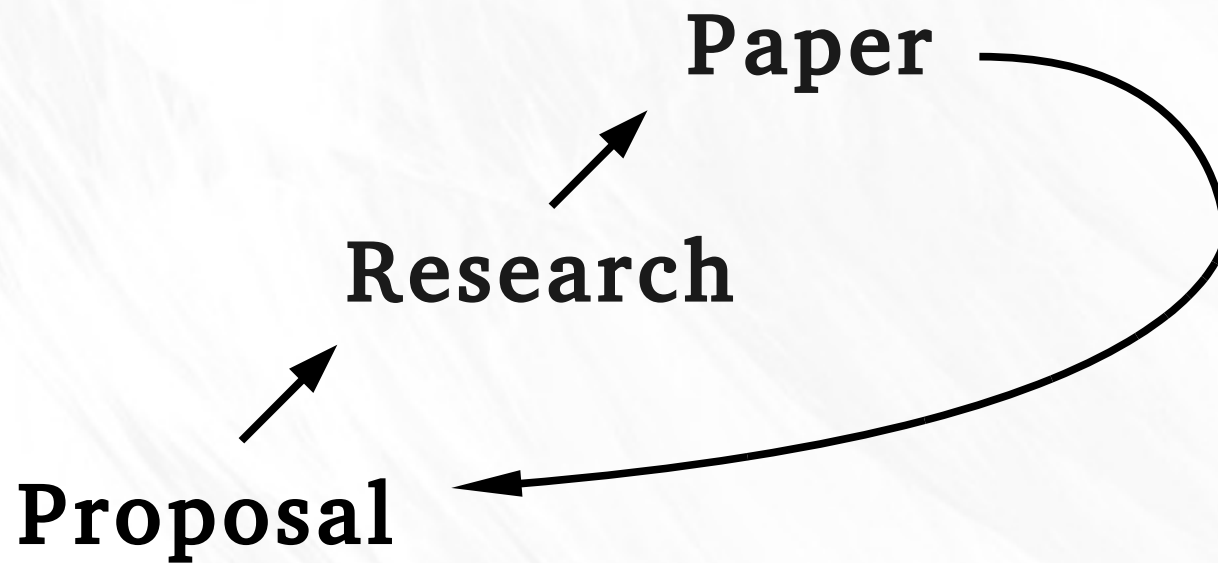
'Professors could rescue newspapers' (CSM, op ed, 2009)

Speaking to the media can advance one's career (Russo, Nature, 2010)

For a career scientist, which skills do you need?

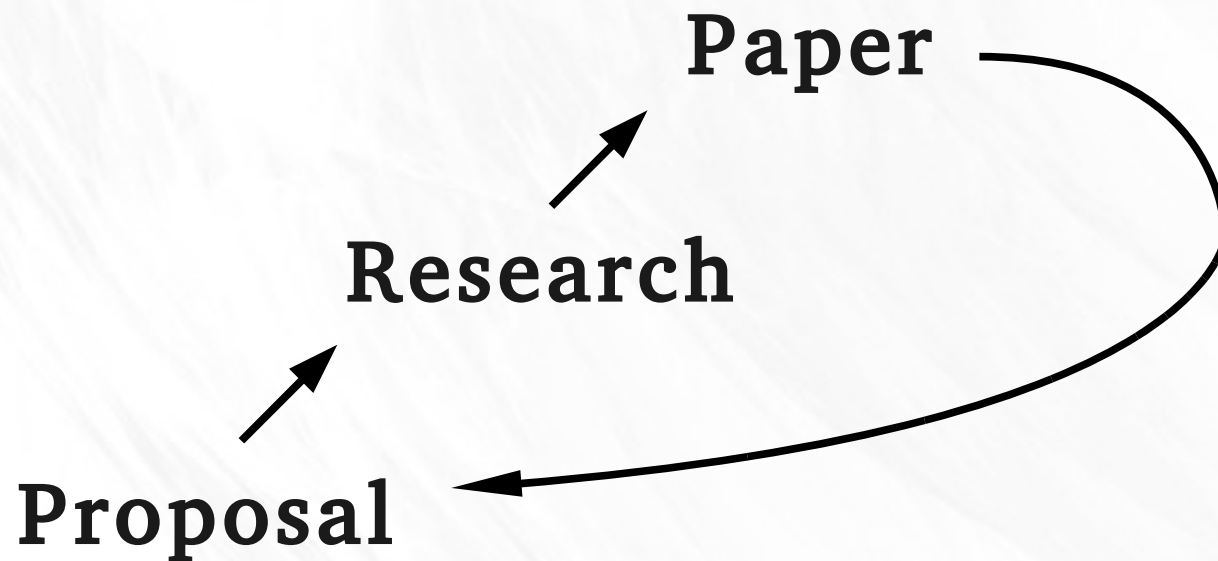
Channel	<i>Consume?</i>	<i>Create?</i>
journal	√	√
email	√	√
web	√	
open science	√	
social media		
media/public		?

The Problem:



The Carnot Cycle of Research Work

*If the public doesn't get their information from scientists,
we're not part of the conversation that sets the agenda...
so how do we fit that in?*



The Carnot Cycle of Research Work

3 Paths

- I) Wait until current generation dies and outreach is simply expected.
- II) Game the system.
- III) Bring about institutional change.

Path I) Patience

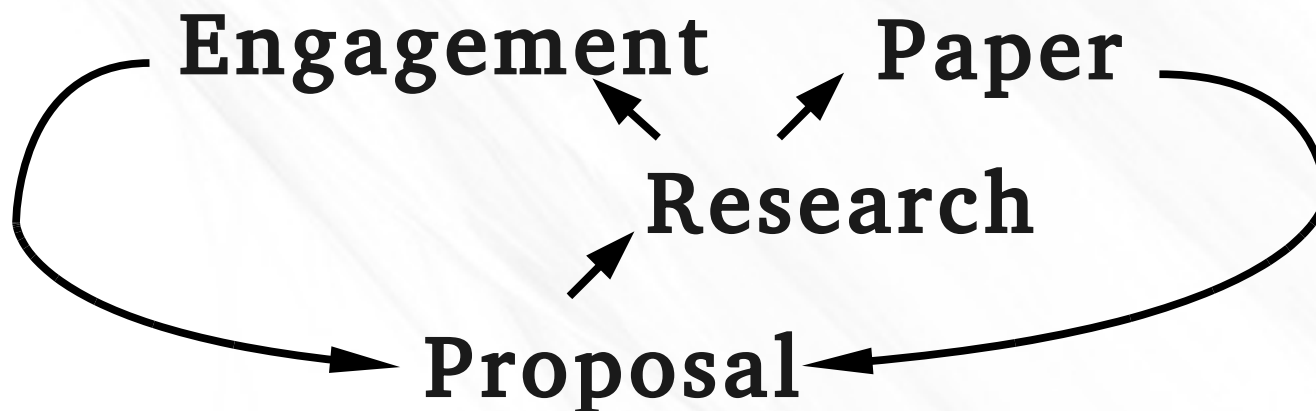
Historically sound: wait until the current generation of blogging post-docs become lab heads.

"Be the change you want"

"Take the hit for the team"

"Remember your ideals once you're a manager."

"[insert favorite cliché here]"



Path II: Game the System

Good news: outreach increases citation. Is it enough?
No...

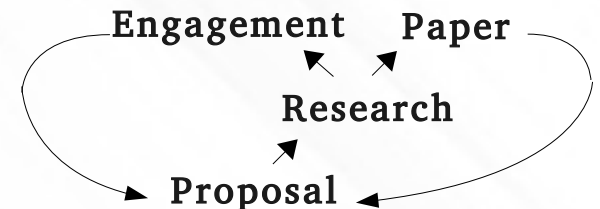
Solution: **Create meta-content**-- publish progress, notes, post-mortems to buff your authorship list.

Solution negated: **CAPJournal != ApJ**

Path III: Institutional Change

All about the metrics.

- 1) Citations
- 2) Audience size (hits, visits)
- 3) Institutional Media Value-- ability to get lab (not just you) into TV/radio/print



Timescale Case Study: Rise of Open Access Journals

Pioneers like arXiv.org pre-print archive (1991) take **a decade** to set the concept, then...

Early adoption: 4-10 years of building

1998/1999: many open journals appear

2001: 'An Open Letter to Scientific Publishers' in Europe

2001: Nature surveyed 120K comp sci papers, free online = 1.5x citations

2002: famous case: Pointcare Conjecture published only as arXiv preprint

2003: efforts in US to mandate open access

2003: analysis of arXiv effect on ApJ: 2.5x citations

Acceptance: 2-4 years for local adoption

2006-2009: PLoS ONE goes from launch to largest open access journal

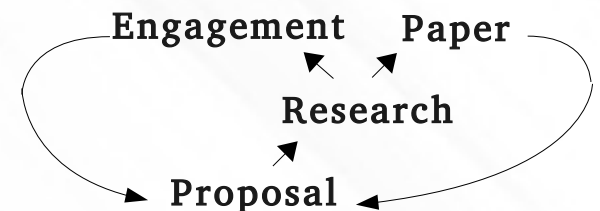
now: open citation equiv closed; quality of journal, not method is primary

Which stage are We now?



Steps:

- 1) Need an accepted citation standard to encourage citation.
- 2) Give pro-outreach manager something to latch onto.
- 3) Reinforce with in-house metrics.
- 4) *Buy-in from a federal lab, fed agency, or large university.



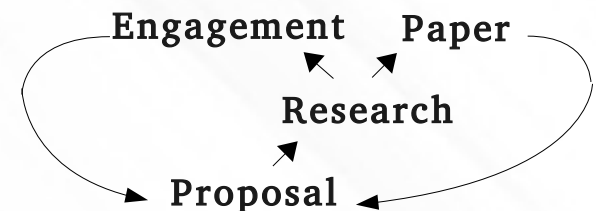
Citation (the easy part):

Example:

A. Antunes and K. Mukai, authors, "Bats on the Shuttle", *Imagine the Universe: Ask an Astrophysicist*, 24 Oct 1997, http://imagine.gsfc.nasa.gov/docs/ask_astro/answers_971024a.html

- URL not needed in 'search' era? If you can't find it by search, it's not notable?
- Needs Bootstrapping: for outreach citations to become valuable, valuable people must use them.

If "*Researcher A* is seen as valuable" (by in-house metrics) and "*Researcher A* has much cited outreach", then "citable outreach will be seen as valid."



Conclusions:

- ✓ Public engagement is necessary in a "big picture" sense.
- ✓ Careers are built on *Proposal*->*Research*->*Paper* cycle
- ✓ As a leader, support engagement.
- ✓ As an individual:
 1. get top cover from boss
 2. engage the public
 3. cite it, even if (for now) it's low impact.
- ✓ In 2-10 years, engagement will be part of the career cycle.

