

Minimizing the collective action problem

Björn Brembs 

Published May 12, 2021

Citation

Brembs, B. (2021, May 12). Minimizing the collective action problem. *Bjoern.brembs.blog*. <https://doi.org/10.59350/kx875-1q332>

Keywords

Science Politics, Collective Action, Funders, Funding Agencies, Infrastructure

Everyone will not just

If your solution to some problem relies on “If everyone would just...” then you do not have a solution. Everyone is not going to just. At no time in the history of the universe has everyone just, and they're not going to start now.

13,637 notes Aug 4th, 2017



Copyright

Copyright © Björn Brembs 2021. Distributed under the terms of the [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Most academics would agree that the way scholarship is done today, in the broadest, most general terms, is in dire need of modernization. Problems abound from counter-productive incentives, inefficiencies, lack of reproducibility, to an overemphasis on competition at the expense of cooperation, or a technically antiquated digital infrastructure that charges too much and provides only few useful functionalities. Many a scholar have expressed the issue in terms of a [social dilemma](#): the proximate interests of each individual actor, be it institution or individual are not aligned with the distal interests of the collective knowledge creation process. In other words, collective action is needed, where multiple actors act collectively in order to mitigate against the potential detrimental effects for each individual actor. This insight has been articulated for various aspects of scholarly reform, be it our [literature](#), [research quality](#), or [scholarship in general](#). Collective action solutions can have various implementations from a simple aspiration such as “if only everybody would do X” to a contractual agreement among individuals to form a collective with a specific purpose, goals and means or strategies to achieve them. They all have in common that a sufficient number of actors need to act simultaneously enough in order to overcome the proximal obstacles.

Most of the numbers to express the size of this collective action problem are not so difficult to obtain. The main actors in this problem are of course individual researchers, but also the institutions at which they work and here in particular their libraries which hold the purse strings for much of the digital infrastructure that is in need of reform. Finally, research funding agencies (funders) not only provide key incentives for researchers but also decide which institutions are eligible for funding.

Citing OECD statistics, the [2018 STM report](#) lists about 7.1 million full-time equivalent researchers globally. Given that many of these will be part time employees and sites like [ResearchGate](#) list about 17 million users, adding at least 50% to these 7 million or a total of about 11 million currently active, individual researchers is probably required for a lower bound estimate.

The number of universities is likely a reasonable approximation for the number of libraries. [Webometrics lists](#) about 30,000 universities globally.

The number of funding agencies is less easy to estimate. There is no list of funding agencies. The organization of research funding varies between countries such that research funds come both directly from the research institution and from funders that are often national, but also international in reach. Funders can be governmental or philanthropic. With about 200 countries in the world and each country with at least one, possibly more funding agencies, 400-500 funding agencies with at least roughly comparable influence over institutions and individual researchers is probably a reasonable estimate.

Taken together, we are looking at more than ten million researchers, 30,000 institutions but not even 1,000 funding agencies. These numbers only denote relative sizes as only the end of the collective action problem is given by the absolute size of the collective. The number required to start collective action in a way that leads to pervasive reform is not known. Given the massive disparities between research intensive countries and the rest of the world, whatever the this theoretical fraction of the collective joining the “early movers” will likely be further reduced if

the “early movers” were largely composed of actors from leading research nations. Thus, if one considered only the most ‘influential’ 10% of all actors needing to be involved for a snowball effect of change to sweep the globe, the numbers change to one million researchers, three thousand institutions or just 40 funders. Thus, even at such dramatically reduced sizes, both individual researchers and their institutions appear as unreasonably large targets for any meaningful short to mid-term impact. Funders, however, not only represent a manageable size for a collective action problem, they ought to also have an intrinsic interest that their money is spent with the interest of the public in mind and not necessarily that of the individual researchers as long as it remains at odds with that of the public that provides the funds.

All of these numbers corroborate a well-known realization, flippantly formulated below:

Everyone will not just

If your solution to some problem relies on “If everyone would just...” then you do not have a solution. Everyone is not going to just. At no time in the history of the universe has everyone just, and they’re not going to start now.

13,637 notes Aug 4th, 2017



What could funders do in order to initiate collective reform? Clearly, the mission of funding agencies is to fund research projects, not infrastructure. Just spending their money on infrastructure instead of research projects would be contrary to their mission and deteriorate the already in many places already precipitously low funding rates. If anything, funding agencies should increase their funding rates and not decrease them even further below already unhealthy levels. Funding agencies have a range of orthogonal options to shape research policies at institutions at their disposal. For instance, funders set very specific [eligibility criteria](#) that institutions need to fulfill in order for their members to receive grant funding. If these eligibility criteria were to exclude institutions which fund or otherwise support counter-productive incentives, irreproducible science or wasteful and dysfunctional infrastructure, these institutions would be incentivized to become eligible again. Funding agencies could thus use their eligibility criteria to reward and penalize desired and counter-productive institutional policies, respectively. Historically, such eligibility criteria have been used very effectively to ensure minimum infrastructure standards. Today, just like seemingly everything in this domain, these criteria just urgently need an overhaul. Some funders are already updating their policies in this regards, such as the DFG, the [Wellcome Trust](#) or the [Templeton World Charity Foundation](#).

The question remains whether other funding agencies are aware of their power and willing to initiate the procedures required for modernizing their eligibility criteria? The formation of

initiatives such as “Plan S” shows that the general understanding of the need for modernization together with a willingness for collective action is present in some of these funders. The general feasibility of such a “[Plan I](#)” (for infrastructure) was also already [acknowledged](#). With understanding, general willingness and feasibility established, it remains to be seen if funding agencies consider the current threats to publicly funded science serious and urgent enough to warrant the effort to improve their eligibility criteria.

Thus, institutions need to modernize their infrastructure such that researchers are enabled to modernize their scholarship. They have now had more than 30 years for this modernization and neither of them have acted. At this point it is fair to assume, barring some major catastrophe forcing their hands, that such modernization is not going to magically appear within the next three decades, either. Funders, therefore, are in a position to *incentivize* this long overdue modernization, not by mandating 11 million individuals, but by [mandating institutions](#) to finally implement long overdue modernizations – modernizations which institutions and hence researchers have been too complacent or too reticent to tackle.

If we are faced with a collective action problem, as I would tend to agree, and the size of the collective is the major determinant for effective problem solving, then it is a short step to realize that funders are in a uniquely suited position to start solving this collective action problem. Conversely, then, it is only legitimate to question the motives of those who seek to make the collective action problem unnecessary difficult by advocating to target individual researchers or institutions. What could possibly be the benefit of making the collective action problem numerically more difficult to solve?