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# Missed marks: This is no longer the 20th century

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## Abstract

Following an invitation by the editors of *Social Science Information* to react to an article by Olof Hallonsten, this article joins a debate about ways of evaluating science in our current context. This article presents an argument in support of the following four assertions and their importance to properly approach today the transformations of science evaluation and governance in the last decades: (a) scientific communities have failed to update their self-governance as societies transitioned from ‘rural-labor societies’ to ‘urban-knowledge societies’; (b) the ensuing discrepancy from expectations contributed to the economization of science; (c) we must consider two distinct processes of democratization; and (d) geopolitics plays an important role in the establishment of commodification in wealthy nations.

## Keywords

knowledge society, open science, research evaluation, responsible research and innovation, sociology of science

## Résumé

A la suite de l’invitation des éditeurs d’*Information sur les sciences sociales* à réagir à un article d’Olof Hallonsten, cet article prend part au débat portant sur l’évaluation de la science à notre époque. Cet article défend les quatre constats qui suivent, ainsi que leur importance pour appréhender aujourd’hui correctement les transformations de l’évaluation et de la gouvernance qu’a connu la science au cours des dernières décennies : (a) les communautés scientifiques ont échoué à renouveler leur propre manière de se gouverner alors que les sociétés passaient de sociétés rurales fondées sur le travail à des sociétés urbaines fondées sur le savoir ; (b) l’écart qui en résulta par rapport aux attentes contribua à l’économisation de la science ; (c) nous devons envisager deux processus de démocratisation distincts ; et (d) la géopolitique joue un rôle important dans l’avènement de la marchandisation dans les pays riches.

## Mots-clés

évaluation de la recherche scientifique, recherche et innovation responsables, science ouverte, société du savoir, sociologie des sciences

Following an invitation by the editors of *Social Science Information* to react to an article by Olof Hallonsten, this article joins a debate about ways of evaluating science in our current context. I will start by providing my own synthesis of Hallonsten's argument (Hallonsten, 2021), in order to position my response.

Through an historical examination of trends of 'economization', 'distrust', 'democratization', and 'commodification' of science, Hallonsten claims that the narrative asserting that science is somehow poorly governed or needs stricter management is absurd. He suggests that considering in some depth the world in which we live should suffice to reveal how preposterous it is to presume that counting citations or anything that can be inventoried could somehow reflect the pervasive and nonlinear role of scientific knowledge in contemporary life. Scientific communities are diverse and self-organizing systems; if we want 'better science', regardless of what we mean by that, then we must engage with it by embracing its complexity and stop the make-believe tale that it is a commodity to be produced, traded, and priced.

Let me say that I agree with this reading of the text. Left without shallow quantitative managerial devices, scientific communities would have kept improving our knowledge of the world and delivering useful innovation at a pace no slower than what is promoted by current trends of economization and commodification, with the caveat that more effort would have been accorded to knowledge and innovation that are less readily measured. Having said that, I consider that the argument, as presented, misses the mark about the transformation of science in four important ways that limit its analytical power and its effectiveness as a call to action. They correspond to the four assertions of this contribution: (a) scientific communities have failed to update their self-governance as societies transitioned from 'rural-labor societies' to 'urban-knowledge societies'; (b) the ensuing discrepancy from expectations contributed to the economization of science; (c) we must consider two distinct processes of democratization; and (d) geopolitics plays an important role in the establishment of commodification in wealthy nations.

The year we are having this conversation in is the year Wikipedia grew out of its teens. It is also the year when a mutation that turns humans into telepaths with shared eidetic memory became prevalent in more than half the world's population<sup>1</sup>. Those 'several decades [since] science is no longer viewed as a public good but as a financial good, and no longer expected to advance civilization or culture in a wider sense but to first and foremost drive economic growth' that Hallonsten mentions (2021: 12–13) have also transformed the relationship every single human being entertains with knowledge. The stakeholders of science have not expanded, they have exploded. Everywhere on earth, people constantly interact with new knowledge, and when given the chance of a conducive environment, inconspicuous techies make contributions to widely used free and open-source software and hardware that elsewhere could be awarded a master's degree, high-schools command reagents and join cutting-edge drug discovery and synthetic biology research, math enthusiasts collaborate across the globe with professional mathematicians in solving some of the toughest problems, indigenous peasants document and share knowledge and biological material<sup>2</sup> (Albagli et al., 2015; Kothari et al., 2019), and the social sciences equally face a turn towards situated and participatory research (Albert et al., 2021). Science communication broadcasts proliferate, with massive followings, and recent US opinion polls show decent levels of trust in science, which may vary significantly across issues, but where a majority of people align with scientific standards of trust when it comes to funding sources, peer review and transparency (Funk, 2020). Furthermore, it should be keenly noted that almost nowhere in these phenomena do people articulate or justify science in terms of metrics and indicators.

The knowledge society, the one where communities engage with knowledge, is a fulfilled promise, yet for a number of reasons science did not react accordingly. Facing a world where knowledge justice becomes a popular demand (Kapczynski and Krikorian, 2010), universities that

1 A more revealing description of humans carrying Internet-connected smartphones; along the lines of cyberfeminism (Haraway, 1991).

2 Referring to initiatives such as iGem (<https://igem.org/>), Breaking Good (<https://www.breakinggoodproject.com/>), the Polymath Projects (<https://polymathprojects.org/>), and Via Campesina (<https://viacampesina.org/>).

were conceived to train elites have done very little to adapt, let alone live up to the challenge, when they're the ones positioned to take it to the next level. In that, economization and commodification have conveniently served the corporatism of scientific institutions by providing an alibi and a distraction to shield them from updating their governance to account for contemporary realities of the knowledge public good (Lafuente and Toledo, 2020). To this day, progress towards a scientific culture more fairly distributed throughout society, from access to publications, to open educational resources, to commitment with the territory, and engagement with pre-tertiary education, have come mostly as a result of hard fought, sometimes heroic, battles, despite the technological affordances and the increasing numbers of higher-education alumni favoring these ends. The advent of a free, multilingual and universal encyclopedia had to wait for the initiative of a pornography entrepreneur; and despite the fact that Wikipedia established itself as one of the main learning resources used by citizens and scientists alike, scientific institutions rarely do better than ignore it. Universal access to the scientific literature has to be 'illegally' provided by a grassroots movement on the backs of a suicide and a forced exile<sup>3</sup>, while some major scientific professional associations are still actively fighting against it<sup>4</sup>. Community-engaging institutional initiatives have seen an expansion<sup>5</sup> (De Filippo et al., 2018) under recent trends towards Responsible Research and Innovation (RRI; Robinson et al., 2020), but they will remain a distant reality for most science if they are not radically scaled-up. At the same time, both private and public universities in many countries have raised costs for diplomas whose value has entered a regime of diminishing returns. And it took a world-stopping pandemic for most of them to make a move towards more accessible digital learning, but with prices and practices still seeing little change. In short, over the last decades, scientific institutions – faced with popular demand and disposing of the means to respond to it – have for the most part slipped away from the challenges and responsibilities associated with a mission to 'advance civilization or culture in a wider sense' instead of cooperating for the public good. As this gap grew with each techno-social shift during the period, embracing economization and the game of metrics has been the path of least resistance for science. By yielding control to bureaucrats that have an interest in controlling science for strictly economic ends, science as an institution has managed to avoid facing a world that is no longer satisfied by the producer-consumer game. Ironically, this is a world that, much like science itself, wants to know 'why?' (Benkler, 2006; Kotler, 2010).

The term democratization therefore can be attributed to two distinct but related processes. One is a deep democratization that, as we've just seen, still paralyzes a majority of scientists and institutions. The other is the one Hallonsten discusses, which comforts science and, as long as science submits itself, promises to fund and shield it from actually engaging with its expanded stakeholders. The forces supporting this latter alternative are, as he explains, connected to the broader economization of life and the political instrumentalization of science. In this context, behind the facade of efficiency and performance evaluation, the enthronement of metrics acts as a performative instrument to designate an elite, of what is in reality a self-organizing system, providing other elites with a lever to influence and direct scientific efforts (Lebaron, 2015). That scientific communities have significantly expanded over the years, and became more international, only makes such a 'need for elite' more pressing. These observations lead me to suggest that we'll communicate better if we refer to this second process by the more appropriate term 'elitization'<sup>6</sup>.

The performative power yielded by elitization, as just noted, is particularly relevant in the international arena. By numerologically construing a mostly Anglo-Saxon elite as the global reference for performance evaluation, wealthy nations manage to command the academic efforts and investments of poor countries towards goals that serve them, in place of situated goals that might

3 I refer, of course, to Aaron Swartz and Alexandra Elbakyan.

4 For instance, the American Chemical Society (ACS) recently joined forces with editorial corporations to take down access to Sci-Hub, in the peak of the coronavirus pandemic, for the whole of India. See: <https://torrentfreak.com/sci-hub-scientists-academics-teachers-and-students-protest-blocking-lawsuit-050121/>

5 Such as university makerspaces and science shops, following an earlier expansion of autonomous hackerspaces.

6 Which has the added benefits of (1) not overloading the frequently employed term 'democratization of science' with a notion that is, in a sense, its opposite; and (2) not overlapping with terms used to describe other, non-commodified, processes of scientific elitism (Bourdieu, 1984).

serve these countries better (Acharya and Pathak, 2019). Interestingly, such arrangements get deployed with little effort, given the cross-border nature of science, the shallow but deceiving ‘neutrality’ cover of quantitative performance metrics, and above all the globally dominant developed-developing ideology whereby the poor must overcome poverty by imitating the rich, or rather by following the path the rich tell them is right (Sachs, 2019). This, in turn, creates a strong motivation for decision makers in rich countries to push for elitization, even if they were to acknowledge that it might hurt their own scientific communities. In a globalized world, just like monopolist corporations get overlooked by antitrust agencies because their monopoly power allows them to take over foreign markets, bringing profits home, the elitization of science may be seen by wealthy countries as a strategy to frame the world’s research and teaching around issues and perspectives to their advantage.

Fortunately, none of these forces are absolute, and none of the actors are trivial. Research communities have often organized and reacted to commodification by adapting publication and citation practices, and there are clear and steady advances towards a more positively democratized research, in the sense of an open one, as shown by the very examples listed above. Yet there’s only so much researchers can do on their own, and research institutions are still shy. They are only recently adopting bolder requirements for research transparency, which are already obvious to society, and for the most part still remain removed from more participatory paradigms. For instance, we see this with the underwhelming outcome of the overwhelming societal response to the pandemic regarding innovation in medical equipment, where institutional support was required and failed (Stirling and Bowman, 2021). But insofar as research institutions are governed by researchers, among whom I figure, it is our responsibility to keep pushing for reforms. We do need to invest more – in terms of thought, time and money – in experimentation and significant deployment for bringing in the public, of which we’re all a part. Finding the right mix of disciplined and mutually interesting ways to do this is imperative lest we spend our lives hiding behind economization, for this is no longer the 20th century.

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