The RESEARCHERS.ONE Mission

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A peer-review publication platform created by researchers, for researchers.

1 Introduction

Peer review serves a dual purpose in today's academic publishing process. On one hand, peer review lies at the very core of scholarly pursuit, as constructive feedback enables authors to improve their work prior to publication. On the other hand, peer review aims to establish an authoritative scholastic record by ensuring that published work meets a minimal scholarly standard and by filtering work that is judged to lie below that standard. In modern academic culture, these two roles of peer review stand in stark opposition, with the latter serving an expressly sociological and political function far removed from the scholarly and pure self-governance of the former.

In today's academia, the bureaucratic function of peer review has transformed an otherwise high-minded institution into "an authoritarian system resembling a priesthood or a guild" [25], with authority consolidated in the hands of parasitic publishing outlets, self-serving professional societies, and insular editorial boards. At the heart of the problem is the academic publish-or-perish culture, wherein the undue importance of 'getting published' creates a domino effect that generates massive profits for publishers, reinforces hierarchical structures via a sociological process of "inclusion-exclusion" [26], and indoctrinates generations of scholars into a cult of indentured sycophancy, by which upstanding and agreeable members of the guild are rewarded with influential positions on editorial boards, awards committees, and grant panels—the academic equivalent of made men.

While scholarly pursuit has come a long way since Hippasus of Metapontum was murdered for divulging the discovery by Pythagoras's school that $\sqrt{2}$ is irrational, political motivations still hold sway. Poignant examples include the Brouwer–Hilbert controversy in mathematics [3], the CRISPR dispute in human genetics [4], and the removal of Ted Hill's article on the variability hypothesis from two math journals [10]. Many more low-profile instances of rejection, subversion, and cronyism foster resentment and angst, as the modern "age of selfies" [8] entraps even scholars with the best intentions into a downward spiral of navel-gazing and cynicism. Cynical feelings lead to cynical behaviors, such as gaming the system, political maneuvering, and research misconduct, which over time eats away at the institution's very foundation.

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These trends especially target students, postdocs, and non-tenured faculty who, instead of being encouraged to challenge conventions and pursue their passions, are pressured to seek initiation into the guild, as when a college freshman rushes a fraternity or sorority. The hazing process includes refereeing articles for journals, serving on conference organizing committees, and otherwise donating time and energy to the discipline's predominant professional society. The result of hazing is conformance, watered-down research, stifled creativity, and groupthink. In extreme cases, junior researchers are "bullied into bad science" [14] in exchange for the approval of senior researchers serving on grant proposal review panels, editorial boards, and tenure committees, on whose decisions these junior researchers' livelihoods depend.

On top of the negative intellectual and sociological consequences of this despotic system, many of the practical concerns that once made the filtering role of peer review beneficial, if not necessary, are no longer relevant. In the age of the Internet and social media, the marginal costs of soliciting expert feedback and worldwide dissemination are negligible, eliminating both the scholarly and sociological need for journals in their current form. But far more than the inconvenience it poses, the arcane publishing process does little to improve the quality of published research and much to perpetuate the toxic environment that exists in many fields.

Referees commonly request authors to conduct further experiments, include more examples, and add extra citations before their work can be accepted for publication. In many cases these requests are superfluous—the experiments provide no further insight, the examples add no clarity, and the citations are irrelevant to the topic—but the authors feel compelled to include them anyway, either out of fear that the article would otherwise be rejected or frustration that refusing to do so will extend an already long and drawn out review process. As Nobel prize winner Peter Doherty puts it: "The editorial process can be so protracted [...] that you end up with a paper that is totally unreadable [...]. The reviewers have turned it into a porridge."

In isolation, any one of these annoyances may seem minor and inconsequential, as if a rite of passage that every researcher must go through to 'earn their stripes'. But their cumulative effect on the collective mindset of academic researchers can be devastating. The frustrations in dealing with this system foster resentment, angst, and cynicism, especially among junior researchers. We know of many new researchers whose negative experiences as graduate students, postdocs, and junior faculty have driven them away from an academic career. Those who persevere and remain in academics often adapt to its culture by adopting toxic behaviors of their own. As renowned statistician Jerzy Neyman famously said,

> It is my experience that whenever a generally decent fellow is asked to act as an anonymous referee, he is apt to acquire hateful qualities: presumptuousness, quarrelsomeness, and bossiness.

Larry Wasserman [26] capsulized this vicious cycle of cynicism: "Today's mistreated young researchers are tomorrow's nasty referees."

As is true of any system, researchers who are most successful within the current paradigm, and thus are in the strongest position to effect change, are the least incentivized to do so. Conversely, those most disadvantaged by the system are in the weakest position, as their initiatives are likely to be dismissed as 'sour grapes'. Though our qualifications are not especially relevant to the broader concerns discussed here, our experiences within this system have played an integral role in developing our perspective. Far from being

mistreated as young researchers, we are fortunate to have published widely in the top journals of our respective fields, written books, served or been asked to serve as associate editors for leading journals, and received recognition in the form of grant funding, awards, early tenure, and invited lectures around the world. These successes have afforded us great opportunities for which we are grateful. They have also given us access to the peer review process from different angles: as authors, our articles have been accepted and rejected for good reasons and bad; as referees and associate editors, we have contributed, albeit regrettably, to accept-reject decisions affecting other researchers' work; and as active members of our respective research communities, we have listened to the horror stories of our colleagues, who are themselves researchers, referees, and editors, about the politics and pettiness that are endemic to modern academia.

Perhaps most telling is that our success within this system has not only given us the perspective laid out in this document but also motivated our need to seek an alternative to what exists. Quite simply, the current system isn't what we signed up for. For us, the prevailing measures of success (e.g., grant money, impact factor, citation count, prestige, etc.) do not correlate with what we find most fulfilling, namely, the excitement that comes with making new discoveries that contribute (no matter how small) to the body of human knowledge and in celebrating the contributions made by others. We have watched all too many of our senior colleagues pay lip service to these concerns, complaining loudly in private conversations, calling for best practices and more awareness, assembling committees, and participating in panel discussions about the atrocities of a system that they have helped to create and of which they are now leaders. In saying all the right things and doing nothing, the leaders of these fields are complicit in perpetuating anti-intellectualism, careerism, and opportunism. Thus, despite our relative successes, we do not wish to be lulled into the belief that the aforementioned concerns about this system are 'someone else's problem'. As we consider ourselves first and foremost to be researchers and scholars, these problems are our problems.

To recapture the spirit that attracted us into our respective fields, we have sought to create an alternative model for peer review without the baggage of the current system. Our realization that the administrative arm of the peer review process is asphyxiating its scholarly arm was a revelation. To create a better system, it was clear that we needed to separate these two roles, by giving researchers the opportunity to engage in scholarly dialogue without requiring that they subject themselves to the administrative process of validation via accept/reject decisions. In such a system, the authors would control the peer review and publication process from start to finish, from submission to publication, so that there would be no ambiguity about how or why an article has been published and no prestige or credit associated with the simple act of publishing; paper padding would no longer be a viable career strategy and credit would instead be conferred organically, by recognition of high quality work by a large number of individuals, not acceptance based on the opinion of a single editor and one or two referees; and 'gaming the system' would be impossible because there would be no 'system' to be gamed.

Here we introduce such an alternative in RESEARCHERS.ONE, which we founded in 2017 as a registered 501(c)(3) non-profit organization that is aimed at empowering individual researchers to engage the scholarly community without administrative, bureaucratic, sociological, and political interference. The RESEARCHERS.ONE platform was born of necessity, first because the existing peer review and publication model is a detriment to scholarly work and scientific progress and, second, because the problems are too widespread and severe to be corrected by *ad hoc* fixes to what already exists.

RESEARCHERS.ONE is an innovative platform for disseminating research and scholarship without the influence of editorial cartels, publishing conglomerates, or intellectual oligarchs. RESEARCHERS.ONE welcomes and encourages submissions from all members of the international scholarly community, which includes professional and non-professional researchers as well as independent scholars and citizen-scientists. Other than access to a computer and the Internet, there are no artificial barriers to entry, such as credentials, academic titles, or political connections.

The primary objective of RESEARCHERS.ONE is to facilitate open scholarly communication with maximal transparency, fairness, and freedom and without the interference of editorial boards, prestige, or impact factor. RESEARCHERS.ONE is open to all scholars, in all disciplines, and is dedicated to upholding the *3 A's of scholarship*—Autonomy, Authority, and Access—with a straightforward mission statement:

RESEARCHERS.ONE empowers researchers with the
Autonomy to pursue their passions,
Authority to develop and disseminate their ideas and
Access to engage with the international community of scholars.

As creators of RESEARCHERS.ONE, we believe that scholarship flourishes when entrusted to the scholars, and it is our singular mission to live out this belief by upholding the above principles. We aim to carry out this mission by maintaining and managing the RESEARCHERS.ONE web platform for as long as necessary. We do not have any capacity as editors or authorities regarding the content posted and published on this platform, nor is it our intention to ever assume such a role. Our role as founders of RESEARCHERS.ONE is to provide a venue in which research can be freely conducted and communicated at little or no monetary cost to researchers.

The remainder of this paper describes how the RESEARCHERS.ONE platform will achieve its mission and discusses how RESEARCHERS.ONE compares to the current peer review system and other initiatives.

2   The 3 A's and how RESEARCHERS.ONE achieves them

The primary goal of RESEARCHERS.ONE is to facilitate high quality scholarship without the pitfalls of Wasserman's "guild-like" system. As part of its mission, RESEARCHERS.ONE is dedicated to providing a platform that promotes transparency, openness, fairness, and creativity while allowing researchers and scholars to create, communicate, and improve their work at their own discretion. Specifically, RESEARCHERS.ONE separates the scholarly aspects of peer review from the administrative by offering researchers the 3 A's.

Some basic attributes of the platform include: there are no editors, there are no accept-reject decisions or other barriers to publication, and there are no barriers to access. In removing these barriers, the RESEARCHERS.ONE autonomous publishing model gives authors total control over the publication process from start to finish, which includes selecting the mode of peer review (public access or traditional), choosing the invited reviewers (if traditional peer review is chosen), determining whether and how to address reviewer comments, and deciding whether or not to publish their work. Once published,

articles are publicly accessible on the site, with options for other users to provide non-anonymous commentary and post-publication peer review. Ultimately, the quality of published work must stand on its own, without the crutch of impact factors, journal prestige, 'likes', 'thumbs up', or the artificial stamp of approval signaled by the label 'peer review'. RESEARCHERS.ONE is an implementation of this vision. Below we discuss its core principles and compare to those of the current system.

2.1 Autonomy

Autonomy, n., freedom from external control or influence; independence.

2.1.1 Current system

Individual journals decide what is publishable and what is not based on authoritative assessments of quality and other arbitrary factors such as the aims and scope of the journal and the whims and preferences of its editorial board. The quality of work is assessed based on its perceived relevance and projected impact, as determined by the journal's editors and the referees they select. In some cases, innovative ideas are rejected simply because they lie outside the journal's scope or go beyond the limits of the editors' expertise. As a consequence, researchers whose careers depend on editorial decisions—which is almost everyone in academia, especially early in their careers—lack the freedom to pursue research topics that they are most passionate about or that they believe will have the greatest long-term impact. Aside from creating an intellectual monoculture, this makes ineffectual use of the talent of individual researchers, who in the interest of establishing their careers are nudged to pursue topics favored by editorial boards at prestigious journals.

2.1.2 Why this fails

It is healthy for new ideas to be met with strong resistance, as such resistance sharpens ideas and presents the opportunity for transformative new theories to "show their mettle" [17]. But there is a difference between resistance and suppression. The gatekeeping role played by journals endows editorial boards with the authority to protect existing paradigms against the threat of new ideas [13]. In favoring suppression over resistance, the current system forces researchers into the unnecessary choice between security and scholarship, which stunts progress while old ideas languish.

Independence is among the main reasons given in favor of academic tenure, but even established researchers, who face less pressure to conform, have limited outlets for spirited and stimulating discourse. It is notable that tenured researchers rarely have an ethos of independence, freedom, and autonomy. To the contrary, tenured faculty are often much more committed to the predominant paradigm than their junior colleagues, with expectations to take on leadership roles at editorial boards and professional societies and pressures to create similar opportunities for their students and mentees. The clearest path to success in any industry is the default path. In most academic fields, this default path entails publishing often, chasing grant money, serving on committees, and "being visible" at conferences. Once committed to pursuit of the default path, researchers are bound in the straitjacket of rewards, status, and influence that serves primarily to suppress, rather than challenge, ideas that go against the prevailing paradigm.

2.1.3   A better system

RESEARCHERS.ONE aims to foster an environment in which revolutionary and controversial ideas can be resisted and criticized without the risk of being suppressed or censored. This will be accomplished by giving researchers the freedom to develop their ideas and present them to the scientific community for constructive feedback, without fear of an impending accept-reject decision that can affect their career. On RESEARCHERS.ONE all ideas enjoy equal stature at the point of publication. Anyone can submit work for peer review, and anything can be published. In exchange for the autonomy afforded by this system, researchers bear the responsibility of ensuring the quality of their research output, as all work published on RESEARCHERS.ONE is subject to open scrutiny and criticism to be displayed on the same page as the original publication.

2.2   Authority

Authority, n., 1) the power or right to give orders, make decisions, and enforce obedience, 2) a person or organization having power or control in a particular, typically political or administrative, sphere. 3) the power to influence others, especially because of one's commanding manner or one's recognized knowledge about something.

2.2.1   Current system

The current system vests substantial authority in the hands of journals, whose editorial boards serve as the gatekeepers of their respective disciplines, controlling the formal process of publication from start to finish. A typical manuscript submission proceeds as follows: editor decides which associate editor (if any) will handle the paper; the associate editor then decides which referees (if any) will review the paper; reviewers provide the associate editor with an opinion about the work's quality and suitability for publication; based on the referee feedback, the associate editor makes a recommendation to the editor; finally, the editor hands down the final decision to the authors, usually citing the recommendations of the associate editor and referees. At this point, the article is either rejected or the authors are given an opportunity to revise their manuscript to address the reviewers' comments and to submit the article for another round of review. It often takes several iterations of this process before a final accept-reject decision is made. If the decision is to 'reject,' then the process begins anew at another journal.

2.2.2   Why this fails

In their gatekeeper role, editors and associate editors decide what is 'important' by highlighting work that is considered to be worthy of publication. This implicit conferral of importance interferes with the aforementioned principle of autonomy, as researchers who seek to do 'important' work are nudged toward topics that are likely to garner favor with editorial boards and awards committees. Moreover, the level of editorial control renders researchers powerless throughout the peer review process. Authors do not choose their referees, and in most cases are not privy to the identities of the referees chosen.[1] Yet if a referee requests changes, authors are most often compelled—out of fear that the referee will otherwise block publication—to address the request, and in some cases are forced to

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[1]For discussion of non-anonymous and post-publication peer review, see Section 3.

add or remove content against their better judgment. The publication that results is a mishmash of ideas from the original authors, anonymous referees, and a group of editors. In the end, the authors do not fully own the publication that bears their name, but they are held fully accountable for its contents. And while accountable for the contents of their work, authors must often relinquish the copyright to the publisher, agreeing to disseminate their own work only under restricted circumstances.

Brian Nosek, co-founder of the Center for Open Science,[2] summarizes the typical researcher's haplessness [19]:

> I, as the researcher, produce the scholarship and I want it to have the biggest impact possible and so what I care about is the prestige of the journal and how many people read it. Once it is finally accepted, since it is so hard to get acceptances, I am so delighted that I will sign anything [...]. I have no idea I have signed over my copyright or what implications that has—nor do I care, because it has no impact on me. The reward is the publication.

The last sentence is especially revelatory of the 'ends justify the means' culture in modern-day academia and how the pursuit of publication corrupts the research and publication process from beginning to end. On the front end, the researcher's need to publish (or perish) incentivizes p-hacking and other questionable research practices, resulting in the replication crisis. On the back end, the reliance of tenure, promotion, and awards committees on arbitrary metrics and measures of journal prestige has spawned the $25 billion dollar a year publishing industry. Academic bureaucracy has allowed publishers to exploit researchers on all sides of the publication process: researchers produce the published work for free (and sometimes even pay processing charges up to $5,000 for a single article); in many journals, the researchers serve as editors, associate editors, and referees; and the researchers, who build on the published literature in future work, are the primary consumers of the published product they produce.

Even more devastating are the negative effects on research output itself, as discussed above. Ultimately the current system fails because the concept of peer review, which is vital to the enhancement of quality scholarship, has morphed into a top-down bureaucratic decision-making process whose fallibility is well known but overlooked. Indeed, many of the issues brought to light by Sokal's hoax [20] remain a problem today, e.g., empirical evidence shows that articles submitted by researchers at prestigious institutions tend to receive more favorable reviews [2, 15].

2.2.3   A better system

Peer review should serve a single purpose: to improve the quality of research. To some extent, the current approach to peer review achieves this aim, but only secondarily to its more immediate administrative (accept-reject, inclusion-exclusion) obligations. In an ideal system, authors would welcome feedback from expert and adversarial referees, actively seeking constructive, negative, and even harsh criticism in order to sharpen their ideas without concern that critical opinions will block their work from publication. But with peer review tied to the publication decision and, in turn, the researcher's livelihood, it is not currently in the author's best interest to solicit helpful but critical feedback.

RESEARCHERS.ONE vests authority in the hands of the authors, allowing the producers of scholarly work to seek as much or as little feedback as they deem necessary to attain

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[2]https://cos.io

their own publication standards. Because the publication decision reflects the approval of the author, and no one else, there can be no artificial inflation of a work's importance by reference to the journal's prestige. On RESEARCHERS.ONE, publication alone carries no prestige, gives no indication of approval by the scholarly community, and creates no illusion of quality or correctness. The work's quality must stand on its own, and be subjected to the scrutiny of the scholarly community through open discourse and criticism over a sustained period of time.[3]

By abolishing the editorial hierarchy and its destructive accept-reject decisions, RESEARCHERS.ONE eliminates the need for anonymity in peer review. Among the main concerns over non-anonymous reviewing is that it discourages critical or negative feedback, even when warranted, because authors who receive negative feedback may be inclined to retaliate (even if involuntarily) when given an opportunity in the future. But since referee reports carry no such weight in the publication decision on RESEARCHERS.ONE, and because referee reports can be kept private if the authors wish, there should be no such adverse consequences.[4] On the flip side, potential conflicts of interest, as when a reviewer is the authors' friend, become irrelevant in the absence of accept-reject editorial decisions. In a system where the act of publication confers no prestige, and the importance of the work is based on its quality, soft refereeing by friends only hurts the work's eventual impact. As a result, there are no review-related conflicts of interest that need to be policed by RESEARCHERS.ONE.

Contrast this with the current top-down system in which publication immediately bestows prestige based on the journal's standing within the pecking order of a given field. Because the work has passed through peer review, there is a sense that the work has been approved by the academic community. If the work contains mistakes or its conclusions are verifiably wrong, the authors are not solely to blame, because the mistakes were not detected during the journal's "rigorous" refereeing process. Authors are thus rewarded with whatever upside (tenure, grants, promotion, etc.) comes with publishing in prestigious journals without exposing them to the downside of publishing incorrect, misleading, and potentially harmful results. The scientific "replication crisis" [11] is one tangible consequence of the absence of *skin in the game* [22] that results from this asymmetric rewards structure. By eliminating this top-down hierarchy, RESEARCHERS.ONE provides an organic (bottom-up) mechanism that will hopefully remove these asymmetries.

2.3   Access

Access, n., freedom or ability to obtain or make use of something.

2.3.1   Current system

Under the traditional model, publishing companies generate revenue by hosting published articles behind a paywall. Individuals who do not have a subscription to the journal have

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[3]A natural question arises as to how readers, who lack the time to read most published work, will identify which publications are worth reading. We discuss this in Section 3.4 below.

[4]This last feature of RESEARCHERS.ONE goes against some calls for open peer review, by which referee reports are made publicly available upon publication. Ultimately, the RESEARCHERS.ONE platform achieves this goal in a different way, as we discuss in Section 4. RESEARCHERS.ONE is also compatible with open peer review, in which the peer review histories are published alongside the article, but this option is left to the authors' discretion.

to pay an amount, usually \$20–\$50,[5] in order to access a single journal article. Though academic researchers at many institutions can access these journals through their university library, other universities lack the funds necessary to pay for these subscriptions, as do researchers not affiliated with a university. Even among those with access, the exorbitant subscription costs drain resources from other educational and research activities.

Backlash over the high subscription prices and aggressive bundling strategies of some publishers has spawned countermovements, such as the Cost of Knowledge project.[6] Rising alongside the Cost of Knowledge project is the Open Access (OA) Movement, by which journals pass the cost of publication to the authors. The authors pay a fee at publication, which at the time of this writing ranges from \$1,000–\$5,000 in the most prominent scientific journals.[7] In exchange for this fee, the article is freely accessible to the public, without any additional fee or blockage by a paywall.

2.3.2   Why this fails

A common argument against journal paywalls is that most published work is financed in whole or in part, directly or indirectly by publicly funded grant money awarded by governmental organizations such as the National Science Foundation, National Institutes of Health, Defense Advanced Research Projects Agency, and other public agencies in the U.S. and around the world. The reasoning is straightforward: the public should be able to access the published results of projects that it funds. Though intended to resolve this and related issues of access, the call for OA has mostly shifted the costs of access from the point of consumption to the point of publication via article processing charges (APCs). Since APCs are often paid through the authors' grant funds, the taxpayer is still being charged twice for access. But the cost becomes invisible when paid by the authors.

There are compelling arguments that OA enables so-called 'predatory publishing' by allowing publishers to generate guaranteed revenues simply by publishing open access and charging APCs. At least when publishers have to rely on revenue from per-article access fees, they have the incentive to publish high quality and high impact work that will be widely cited and widely accessed, leading to higher revenues. When publishers are paid up front through APCs, publishers have the incentive to create new open access journals and publish as many articles as possible. It should be no surprise, then, that the \$25 billion a year for-profit publishing industry has continued to grow right alongside the OA movement [19]. This concern has been argued recently by Boghossian and Lindsay [1], who have characterized their own article, which is published in *Cogent Social Sciences*, as "utter nonsense posing as academic scholarship". In examining how such "nonsense" can pass through peer review, Boghossian and Lindsay posit that open access publishing has made it lucrative for publishers to adopt lax editorial standards while still maintaining the veneer of "peer review".

Another element of *access* that is not part of the OA movement is access to *disseminate* content. Even in dedicated open access publishing journals, the pathway to publication is

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[5]At the time this is written, the journal *Science* charges \$30 for one-day access to a research article. *Nature* allows users to rent an article for 48 hours for \$4.99 or buy for \$20.

[6]http://www.thecostofknowledge.com

[7]The *Public Library of Science*, which pioneered the OA movement currently charges \$1,495 for its flagship *PLOS ONE* journal, \$2,900 for *PLOS Medicine* and *PLOS Biology*, and \$2,250 for its other journals. *Nature Communications* charges \$5,200 for publication from authors in the Americas, China, and Japan, £3,300 in the United Kingdom, and €3,850 in the European Union. (Accessed at `https://www.nature.com/ncomms/about/article-processing-charges` on March 25, 2018).

traditional, requiring approval of the editorial board and referees. What gets disseminated in such open access journals is therefore prone to all of the same biases and discrimination as the current system.

Thus, in the grand scheme the OA movement comes up short, first because excessive publication costs are still paid by public funding, second because APCs create reverse incentives for publishers regarding the quality of the research they accept for publication, and third because the existing power dynamics alluded to in earlier sections restricts dissemination to researchers whose work advances the predominant paradigm.

2.3.3   A better system

In an ideal world, everything would be freely accessible to contributors and consumers, with some additional assurance of quality. In the real world, of course, nothing is free. Nevertheless, by vesting authority in the researchers to ensure the quality of their own work, RESEARCHERS.ONE provides an option for pre-publication peer review, as in the traditional framework, as well as public peer review, pre-registration, and post-publication peer review, all without the need of editorial decisions or other barriers to access. Anyone can publish articles on RESEARCHERS.ONE and the publications are freely accessible to anyone with Internet access. Moreover, anyone with an account on the platform, which is free to create, can comment on published material free of charge.

Since nothing is free, it is necessary to charge users a submission fee for this truly open access initiative. Without the administrative overhead of traditional for-profit and not-for-profit publishing outlets, the submission cost on RESEARCHERS.ONE will be set to $10 per submission upon initial release. This submission charge is less than 1% of the cost to publish 'open access' in more traditional journals. In the future, we intend to keep the submission cost as low as is sustainable. The initial platform is sustainable at the $10 per article charge, and we may be able to decrease this cost if RESEARCHERS.ONE receives sufficient donor support. In keeping with the RESEARCHERS.ONE objective to create a platform that is "for researchers, by researchers", we do not intend to solicit funding from agencies or donors whose large monetary contributions may attempt to steer the initiative away from its initial direction. As the project evolves, we may seek to add or modify features on the RESEARCHERS.ONE platform based on user feedback. For these features, we will run grassroots fundraising campaigns and seek additional support from individual researchers.

3   Specific features of RESEARCHERS.ONE

3.1   Submitting articles

The submission process on RESEARCHERS.ONE resembles the standard submission procedure at most traditional journals. In a series of steps, an author inputs the other authors' names (if any) and relevant metadata, uploads the manuscript and supplementary files,[8] agrees to the terms and conditions (see below), and pays the small submission fee. The major departure from a standard submission process, discussed next, is how peer review is conducted and the decision to publish is made.

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[8]Inclusion of supplementary materials, such as data, is optional. Rather than uploading supplementary files, authors can, if they wish, provide a link or other means to access this material.

In the initial implementation of RESEARCHERS.ONE authors have the option between public (or 'open') peer review and traditional (or 'private') peer review.

- *Public peer review option.* Under this option, the submitted manuscript is made publicly visible at `www.researchers.one`, with an option for other users to post comments and upload referee reports. While under public review, the article is clearly marked as "UNDER REVIEW" on the RESEARCHERS.ONE platform. All comments and reports are visible to the public during the review phase. Authors can revise the initial manuscript as often as they like.

- *Traditional peer review option.* This option proceeds much like peer review is currently conducted in traditional journals, except that on RESEARCHERS.ONE the authors control the selection of referees, whereas in the conventional process referees are chosen by editors and associate editors. On RESEARCHERS.ONE, the publication decision is made by the authors; and because it is the authors' sole responsibility to ensure the quality of their work, the authors have a vested interest in choosing only those reviewers whom they believe will be helpful in achieving this aim. Since it is not required to undergo any formal peer review before publication, there is no reason for authors to burden reviewers unless they intend to take their feedback seriously. Also, since the report is not used for an editorial decision, authors can spare the reviewer's time and focus the reviewer's attention by making specific requests about parts of the work that are most in need of attention (e.g., "Please provide feedback on Section 3"; "Please take a look at the proof of Theorem 1"; or "Do you know any up-to-date references to include in the introduction?").

Because referee reports submitted during the pre-publication phase are only relevant to the preliminary versions of the article, these reports are removed from the site once the article is published. Authors who wish to keep a permanent record of reviewer comments should make sure to download or copy the necessary files prior to publication. Authors who prefer to publish reviewer comments alongside their published article are free to do so by compiling these comments and uploading as a supplementary file to be included in the final publication.[9] Similarly, RESEARCHERS.ONE does not archive previous versions of the manuscript while it is under review, but if authors wish to keep a version history, then they are free to do so by uploading previous versions as supplementary files.

The author can terminate the review process at any time, choosing either to publish their article or to remove it from the platform and not publish at all. Other users can post public, non-anonymous commentary on published work; see Section 3.3. Since published work and commentary are part of the published record, they cannot be deleted.

As mentioned above, submission to RESEARCHERS.ONE requires authors to agree to certain terms and conditions.[10] Aside from granting RESEARCHERS.ONE the license to distribute the article, authors are free to place as many or as few restrictions on the dissemination of their work as they would like. *Importantly, authors publishing on RESEARCHERS.ONE retain full copyright privileges* as well as maximal freedom and discretion over the dissemination of their research.[11]

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[9]Out of courtesy, it is recommended that authors obtain permission from reviewers before publishing peer review histories.

[10]For details, see `https://www.researchers.one/terms-and-conditions`

[11]At the initial release, the Creative Commons CC BY 4.0 (`https://creativecommons.org/licenses/by/4.0/`) copyright agreement is the default for publications on RESEARCHERS.ONE, unless the authors specify otherwise within the article itself.

3.2   Reviewing articles on RESEARCHERS.ONE

Depending on which review option is chosen by the authors, there are two ways to review articles on RESEARCHERS.ONE. In public peer review, the article is made publicly accessible and any user is free to post a publicly-visible referee report. In traditional peer review, the authors solicit specific reviewers to provide private feedback, similarly to how peer review is currently conducted at most journals, with the main difference being that it is the authors, not an editorial board, who identify suitable reviewers.

Since the editorial process on RESEARCHERS.ONE is fully autonomous, the referee report has no formal authority over the author's ability to publish. At RESEARCHERS.ONE the referee has a clearly defined duty to provide critical feedback to the authors, without any concerns over assessing suitability of the material for a specific journal or whether the work meets a poorly defined and subjective publication standard. In this way, authors can request reviewers whose expertise they respect and whose suggestions they intend to take into serious consideration before publication. The author may, based on the referees' recommendations, decide against publication of his or her own accord.

3.3   Commenting and post-publication peer review

All published articles on RESEARCHERS.ONE include the option for any registered user to comment non-anonymously. The platform allows for short comments (input in a text box) and more substantial technical comments (by uploading an accompanying file). These comments can serve a number of purposes including identifying minor errors or clarifying points within the text, providing substantial feedback (as in post-publication peer review), supplementing the published work with additional context about how it fits into the rest of the literature, or making other relevant observations that may not be immediately apparent in the original text.

3.4   User-recommended content

An immediate concern about autonomous publication is that the lack of accept-reject decisions provides no help to other researchers in determining which published works are worth reading, and which are not. While RESEARCHERS.ONE aims to overcome the many problems caused by the current accept-reject filtering mechanism, we recognize users' desire to identify work that is most relevant to their interests and aim to provide a feature that will allow individual users to develop personalized filtering mechanisms that suit their own needs.

To address this challenge on fully-open RESEARCHERS.ONE platform, we drew inspiration from recent developments of *overlay journals*.[12] For example, the mathematics journal *Discrete Analysis* is an overlay journal whose editors curate preprint articles determined to meet its publications standards. For the papers 'published' in this journal, only a link to the preprint article on arXiv is provided on the journal website. In keeping with the principle of researcher authority, we imagined giving each user the opportunity to be an editor of their own overlay journal by linking to content on their profile page.

The 'Recommended Content' feature on RESEARCHERS.ONE does exactly that. It is a step toward a more reliable, and more transparent, mechanism for researchers to find relevant new work by leveraging network effects. Every user on RESEARCHERS.ONE has a

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[12]https://en.wikipedia.org/wiki/Overlay_journal

publicly accessible profile page, which lists their published articles, articles under public peer review, and their *Recommended Content*. These recommendations serve as the user's *personal overlay journal*, where they can call attention to anything they wish, whether an article (or blog post, video, etc.) posted on RESEARCHERS.ONE, another journal, a preprint server, or somewhere else. Instead of relying on the contents of specific journals, the RESEARCHERS.ONE Recommended Content feature gives users an outlet to see what other researchers in their fields of interest find interesting and relevant. Network effects of the platform and online social media thus provide an organic mechanism by which work is more likely to be noticed if it is recommended by a large number of influential individuals. We see ample opportunity to build extensions into and on top of the RESEARCHERS.ONE Recommended Content feature in the future.

4 How RESEARCHERS.ONE relates to other initiatives

4.1 Preprint servers

It is now common in many fields, including mathematics, physics, and psychology, to post research articles on designated preprint servers.[13] These preprint servers provide a venue to disseminate new work while the article undergoes traditional peer review. In some disciplines within mathematics, for example, one year or longer is a common wait time for a single round of peer review. After two or three rounds of review, it is not uncommon for an article to finally be published 3–4 years after the initial submission at the same journal. Rather than wait until publication, the preprint server allows the ideas to be disseminated immediately.

Though lacking a formal mechanism for feedback, the preprint server also enables *ad hoc* peer review. It is unknown how many articles posted on these repositories receive feedback from interested readers, but it is likely very few. Regardless, any suggestions made by *ad hoc* reviewers would still be subject to criticism by the referees at the outlet to which the article is eventually submitted for publication.

The flexibility of the RESEARCHERS.ONE platform allows it to serve as a preprint server or as a journal, depending on the researcher's preference. On the one hand, researchers are free to post articles on RESEARCHERS.ONE, where they can take advantage of the public peer review options, as well as on arXiv, SSRN, and other preprint servers. And for users who seek the validation of publishing in traditional journals, nothing in the RESEARCHERS.ONE terms and conditions prevents them from posting articles for public peer review and submitting that same article for publication elsewhere. In this sense, RESEARCHERS.ONE can function as a "souped-up" preprint server,[14] in that it provides a built-in peer review feature in addition to the usual features of preprint servers. On the other hand, the platform has all the features of a traditional journal, and then some, so users concerned only with the scholarly aspects of peer review can use RESEARCHERS.ONE as their primary venue for publication, taking advantage of its pre- and post-publication

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[13]arXiv (`www.arxiv.org`) covers mathematics, physics, computer science, statistics, computational biology, and some related disciplines; biorxiv (`www.biorxiv.org`) covers biologically related fields; psyarxiv (`www.psyarxiv.org`) covers psychology and related fields; and Social Science Research Network (`www.ssrn.org`) covers the social sciences, law, etc.

[14]Andrew Gelman referred to RESEARCHERS.ONE as a "souped-up arXiv"; see `https://andrewgelman.com/2018/09/10/reseachers-one-a-souped-up-arxiv-with-pre-and-post-pubication-review/`

peer review features.

It is worth pointing out that a single user can interact with the RESEARCHERS.ONE platform in multiple ways, depending on the goals they have for a particular piece of work. For example, we intend to publish our joint and individual work on RESEARCHERS.ONE, so in those cases we will use the platform as a journal. However, career pressures on our junior co-authors and students may dictate that our joint work be submitted to and published in a traditional journal, in which case we would use RESEARCHERS.ONE more like a preprint server.

4.2   Open/non-anonymous peer review

Peer review is traditionally single-blind, meaning that the authors' identities are known to the referees but not *vice versa*. Some journals are double-blind, i.e., the authors' identities are not revealed to referees, while others are triple-blind, meaning that even the editors do not learn the identities of the authors. One appeal of anonymity is to encourage referees to provide honest feedback; but, as discussed above, anonymity also absolves reviewers from responsibility for mistaken or unfair comments that adversely affect the fate of the submitted manuscript. The need for anonymity to promote honest feedback is also a symptom of the greater problem with modern academic culture, in which participants are leery of potential backlash for being honest and transparent when their opinions influence whether an article is accepted or rejected. In this respect, anonymity is the antithesis of scholarly pursuit and should be abolished.

In open peer review the identities of the reviewers are made known to the authors during the review process, possibly after publication. This is intended to promote more conscientious refereeing by incentivizing thoughtful commentary and disincentivizing referees from promoting their own agenda [24]. One disadvantage is that authors could become disenchanted with reviewers who provide critical feedback, even if the criticism is legitimate and tactful [7], once again reinforcing the fundamental flaw with the accept-reject paradigm of scholarly publishing.

The purpose of public peer review is not aimed to correct a scientific problem but rather a sociological problem having to do with unfair reviewing and misaligned incentives. The recent movement toward publishing peer reviews is instead a reaction to the many adverse incentives that exist within the present system. Essentially, the practice of publishing referee reports non-anonymously along with the final article is a scare tactic to deter referees from being unfairly critical, and to give the impression that the editorial process was conducted in an equitable and transparent manner. But if a referee points out mistakes or ambiguities in the original manuscript that are subsequently revised before publication, then any salient comments in their report become irrelevant, and have no need to be published alongside the article.

By putting the publication decision in the author's hands, RESEARCHERS.ONE aims for a system that enjoys the benefits of non-anonymous review without suffering the above drawbacks. In particular, RESEARCHERS.ONE aims to bolster the scientific and scholarly role of peer review while diminishing its sociological and political function. Because authors have full authority over whether their work is published, there is no opportunity for referee retaliation, even by a disgruntled reviewer. Any such attempts at 'retaliation' would have to instead play out publicly and non-anonymously on the RESEARCHERS.ONE post-publication peer review forum. Since these comments are publicly visible and non-anonymous, readers can judge for themselves whether the criticisms are unfair or overly

negative, which could reflect poorly on the reviewer's reputation.

To make sure that the feedback provided before publication is used solely for the purpose of improving the quality of the work, and not to cast judgment on the usefulness or importance of the research before it is finalized, peer reviewer feedback made before publication is *not* published alongside the article on RESEARCHERS.ONE. If reviewer feedback is properly integrated into the final publication, there is no need to call attention to this in the final version. If an author neglects to address relevant suggestions made by a referee, however, that referee is free to call public attention to this oversight during post-publication peer review.[15]

4.3   Post-publication peer review

The RESEARCHERS.ONE comments feature, which allows users to upload substantive comments in a supplementary file, provides a natural mechanism for post-publication peer review (PPPR). Until now, PPPR has been discussed extensively but only implemented by a few outlets. PubMed Commons[16] was once a platform built on top of PubMed, but has been discontinued as of March 2018.[17] PubPeer[18] is a standalone system that allows its users to comment on articles that have been published anywhere in the literature. A perceived benefit of the PubPeer system is that users may be more comfortable to provide critical feedback on a platform other than where the original article is published. Though some users may have found the PubPeer system to be useful, the separation of the published article from the PPPR comments presents a practical problem and highlights a sociological defect of the current peer review system. That is, the impact of a comment is severely diminished if not posted alongside the published article. Many readers, and perhaps even the authors of the original article, will be unaware of these comments unless they specifically go looking for them. And sociologically, the reluctance of researchers to post non-anonymous critical feedback reflects a pervasive mentality that RESEARCHERS.ONE aims to abolish by establishing new scholarly norms.

4.4   Pre-registered reports

RESEARCHERS.ONE complements efforts to improve the replicability of scientific research, as is the goal of the initiative of pre-registration [3]. Pre-registration is aimed at addressing the adverse incentives that drive p-hacking and similar questionable research practices (QRPs) [12]. Though RESEARCHERS.ONE is not designed specifically for this purpose, the open platform is easily amenable to autonomous pre-registration.

In a conventional pre-registered study, the researchers submit a description of their intended experimental protocol, study design, methods, and hypotheses to a journal. These procedures undergo peer review in the usual way, with the main difference being that the review criteria emphasize sound methods rather than the results obtained by

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[15]Though not a default feature of publication on RESEARCHERS.ONE, authors who wish to publish their pre-publication peer review history can upload as a supplementary file along with their publication. In keeping with the principle of researcher autonomy, the RESEARCHERS.ONE platform leaves this decision to the authors.

[16]https://www.ncbi.nlm.nih.gov/pubmedcommons/

[17]https://blogs.scientificamerican.com/information-culture/post-publication-peer-review-everything-changes-and-everything-stays-the-same/

[18]http://pubpeer.com

those methods. If the review is positive, the work is provisionally accepted for publication regardless of what outcomes result from the experiment. Because publication is guaranteed independently of the results, pre-registration disincentivizes p-hacking and other QRPs geared toward achieving publication thresholds.

Though perhaps effective in eliminating specific QRPs that are geared toward achieving publishable *results*, the pre-registration model still follows the traditional accept-reject approach with respect to the proposed *methods*. As such, pre-registration leaves open the door to alternative 'methods-hacking' and other tactics to ensure passage through pre-registration, leading to publication bias of a different kind. As an *ad hoc* fix to the existing publication system, pre-registration does not take any steps toward promoting individual authority or autonomy. Nevertheless, the sentiment underlying pre-registration is worthwhile, and can be seamlessly incorporated into the new platform at RESEARCHERS.ONE. On RESEARCHERS.ONE, researchers can pre-register their study by having their methods reviewed pre-study, using the same autonomous peer review feature described above. This report can then be published, making the pre-registration permanently available, unable to be changed post-study. The authors can then publish follow-up results of their own accord.

4.5   Open access

There are different open access (OA) models, classified generally as green/gold and *gratis*/*libre* open access. The latter two categories distinguish between "removal of access barriers" ("weak OA") and "removal of permission barriers" ("strong OA"), respectively.[19] Green OA refers to a traditional publication which permits authors to self-archive their work on an open access repository, on their own website, etc., but sometimes the journal embargoes self-archiving for a period of time (e.g., 1 year) after publication. Gold OA refers to publications for which the journal makes the articles freely available, and does not charge a per-article fee to view. There are primarily two ways to publish Gold OA: either with an open access journal, which publishes all of its articles OA, or a hybrid OA journal, which gives authors the option to have their article published open access. Gold OA usually requires an "article processing charge", whose amount ranges widely from journal to journal.

In the above terms, RESEARCHERS.ONE practices strong, gold OA, allowing authors to retain all permissions to distribute their work and to freely access published work of others. In exchange, authors are charged a fee at the time of submission, which RESEARCHERS.ONE intends to keep as low as possible. Unlike the leading scientific journals, which can charge thousands of dollars for open access publication, the publication fee at RESEARCHERS.ONE will begin at $10, the minimum amount necessary to cover the costs of publication, website hosting, and to support future developments and improvements to the platform.

5   Response to common objections

Throughout the development of RESEARCHERS.ONE we have discussed our core philosophy with peers and colleagues. We have been encouraged by the positive reception of this

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[19]https://dash.harvard.edu/handle/1/4322580

initiative, as researchers from a wide range of backgrounds openly recognize the importance of peer review reform. In these discussions a number of potential objections and concerns have also arisen. We address the most common of these here.

Objection 1. *Since* RESEARCHERS.ONE *has no accept-reject editorial decision, there will be no quality control.*

Response. It is a mistake to think that the current system ensures quality control and that quality cannot be ensured in the absence of editors. On the first point, the persistent replication crisis in the scientific literature provides striking evidence to the contrary. It has been posited that more than half of published research findings are wrong [11]. Indeed, a recent replication project [16] estimates that more than 60% of published results in leading psychology journals cannot be replicated. This despite ever-increasing awareness and improved scientific 'best practices'. Another telling study comes from the experiment conducted by the computer science conference *Neural Information Processing Systems* (NIPS) in which articles that were evaluated under two independent rounds of review revealed almost complete randomness in the accept-reject decision.[20] The hoaxes by Sokal [20] and Boghossian–Lindsay [1] also expose drastic shortcomings in quality control in the humanities. Furthermore, the belief that peer review achieves quality control, even if sound, may result in a deluded trust of published literature that is detrimental to scholarship on the whole [6].

So while we agree that the peer review process is beneficial for improving the overall quality of research, we see no added value in appending an accept-reject decision to peer review. Whatever quality control is offered by the current peer review system is available on RESEARCHERS.ONE, and then some. As in many professions, the best researchers are their own biggest critics. With the RESEARCHERS.ONE autonomous peer review model, quality control is limited only by the authors' own willingness to solicit feedback and revise their work accordingly. As one example of the boundless possibilities of autonomous peer review, mathematician Doron Zeilberger is reported to have solicited nearly 100 reviews of his proof of the alternating sign conjecture *before* submitting to a traditional peer reviewed journal.[21]

Objection 2. *What will stop people from posting garbage on* RESEARCHERS.ONE *just to pad their paper count?*

Response. Nothing. But since nothing stops this, and publishing an article to RESEARCHERS.ONE does not, on its own, confer any indication of quality (see Objection 1), the practice of inflating paper count should lose its luster on the RESEARCHERS.ONE platform. The current accept-reject publishing paradigm, which confers a stamp of quality and prestige for the simple act of publishing, has made such "garbage" a valuable commodity in the publish-or-perish economy. It should be considered a feature of RESEARCHERS.ONE that in allowing anything to be published without restriction, such so-called "garbage" will lose its value in the academic publishing game.

Objection 3. *In some fields it is necessary to use or build upon results in another field when conducting new research. For example, scientific researchers using statistics in their*

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[20]Of the manuscripts that were accepted during the first round of review, only 40% were accepted in the second round. If the decision were completely random then these percentages would likely be close to the conference acceptance rate of 28%.

[21]See `https://en.wikipedia.org/wiki/Doron\_Zeilberger`, Accessed on August 13, 2018.

work rely on peer review, and in particular its accept-reject filter, when choosing which statistical methods to use in their work. Without such a filtering process, there is no guarantee that the methods in the literature are correct, increasing the likelihood of using a poor method and drawing incorrect conclusions.

Response. This objection is deeply flawed since the filtering provided by one or two referees and an associate editor provides only weak assurance of correctness or quality. In fact, this attitude introduces systemic risks which lie at the heart of the replication crisis in science. Though the current peer review filter may provide some additional assurance about the correctness of published work, mistakes are inevitable. As a result, even if the proportion of mistakes in the literature is lower than it would be otherwise, the 'peer-reviewed' stamp of approval lulls scientists without sufficient expertise into a false sense of security about the correctness of published results in other fields. This trust in the peer review process allows mistakes to compound, as a single mistake during peer review can more easily propagate to future published results [6].

Contrast this with a system (such as RESEARCHERS.ONE) in which there is no reason to blindly trust a published result. In such a system, whenever a result is used in subsequent work, the authors are compelled to check its correctness for themselves, or at least consult with an expert in the respective field. This repeated checking makes it more likely to find errors and less likely for errors to propagate. Though it presents researchers with a greater burden to check the published literature, it makes the research process more robust to compound errors, contrary to the viewpoint expressed in this objection.

Objection 4. *How will I know which papers to read on* RESEARCHERS.ONE *if everything gets published? Even though journals have their drawbacks, at least they serve as a filter for what is worth reading.*

Response. The RESEARCHERS.ONE Recommended Content feature is meant to serve as an overlay journal for each user. Through the Recommended Content feature, users can see what work is considered interesting or important by other researchers they respect. This is likely to be much more reliable than using journal prestige or impact factor as a filter, which most often reflects the predominant viewpoint of a select handful of editors and associate editors. We also anticipate that more natural and reliable filtering mechanisms could be used in parallel to the RESEARCHERS.ONE platform, as both the platform and these mechanisms become more developed.

Objection 5. *Without journal rankings, how will I be able to judge the quality of an individual researcher.*

Response. As mentioned numerous times above, it is folly to judge a researcher based on the perceived quality of the journals in which he or she publishes. The best and most obvious way to judge a researcher is by reading his or her work. Lacking the expertise necessary to evaluate the work, the next best option is to consult with a colleague who is able to read and assess its positives and negatives. If you neither have the expertise nor know anyone else who does, then you might reconsider why you need to judge such a researcher in the first place, and whether you are qualified to do so.

Objection 6. *How will I get credit for promotion and tenure if I publish my work at* RESEARCHERS.ONE *instead of a traditional journal?*

Response. In principle, promotion and tenure are awarded out of recognition for high quality research output. As the RESEARCHERS.ONE platform does nothing to interfere with the assessment of research quality, there is no reason that publishing on this platform would inhibit promotion or tenure evaluations. But given how often we have faced this objection, there is a clear concern that the system does not operate as it claims, or as it should. Unfortunately, such important decisions in many cases rely on the norms of prestige that exist in most fields. These norms include metrics such as paper count, journal impact factor, citation count, and so on, which can be unreliable in many cases [9]. There are signs that the attitude is changing in some fields, but until it is the predominant viewpoint to base such decisions on quality instead of on gameable metrics and proxies, RESEARCHERS.ONE may not be suitable for PhD students and other early-career researchers.

With that said, we can think of no good reason why the existing norms must persist. Outside letters often play an important role in hiring and promotion decisions, and these letters are written by experts who are expected to have knowledge of the candidate's work beyond the names of the journals in which it is published. Because of its transparent publication process, all work published on RESEARCHERS.ONE should be just as easy, if not much easier, to evaluate as work published elsewhere. Extreme cases of this can be seen in mathematics, where Grigori Perelman was awarded the Fields Medal and the Clay Prize for work that he posted on the arXiv and otherwise refused to publish in peer reviewed journals. We are still a long way from this norm being widely adopted, but the movement toward the use of preprint servers suggests that attitudes are moving in the right direction.

Objection 7. *How will I compete for grants if I publish in* RESEARCHERS.ONE *instead of in the traditional journals in my field?*

Response. As grant panels should base funding decisions on real assessments of quality, and not arbitrary proxies such as journal prestige or impact factor, publication in RESEARCHERS.ONE should not have any adverse effect on funding. With that said, we know from our own experience as grant panelists that funding decisions are all too often based on arbitrary metrics instead of the core content and intellectual merits of the proposal. It is discouraging that large sums of public research funds are awarded on the basis of such quick-and-dirty evaluations. Here again it is important for established members of the fields to lead by example and to evaluate grant proposals based on intellectual content alone. At the time of the RESEARCHERS.ONE launch, we are aware of parallel initiatives to reform and decentralize scientific funding. For more information on one such project, called Planck, see [21].

Objection 8. *How will anyone see my work if it is published in* RESEARCHERS.ONE *instead of in well-known journals?*

Response. Fewer and fewer people are accessing articles by browsing through journals. Though the articles might be hosted on a journal website, this work is more often communicated through social media, email, talks, videos, and so on. In math, statistics, and physics it is common for articles to become widely known several years before they are even published. Even after publication, few people access the final journal article, which may be hosted behind a paywall. They instead access the article through the preprint server, such as arXiv, and some journals, such as *The Annals of Probability*, even post

the final version of their published articles on a preprint server in addition to the journal's official webpage. All of these same channels will be available for publicizing work published on RESEARCHERS.ONE. And, since the authors retain full copyright privileges, they are at liberty to post and distribute their work as freely as they would like.

Objection 9. *Since there is no requirement of peer review and no editorial decisions, what distinguishes* RESEARCHERS.ONE *from a preprint server?*

Response. Whereas preprint servers are complementary to the existing peer review system, RESEARCHERS.ONE is proposed as a replacement of the system. RESEARCHERS.ONE offers a number of additional features that emphasize its role as a publication platform, not a preprint server. Once articles are published on RESEARCHERS.ONE, they are permanent.[22] Moreover, there are options, in particular, the public peer review feature unique to RESEARCHERS.ONE, for other users to comment before and after publication. The RESEARCHERS.ONE platform also equips each user with a publicly visible profile that lists published work, articles under review, and recommended content. In the future RESEARCHERS.ONE will continue to add features as the landscape of scholarly publication continues to evolve. As the RESEARCHERS.ONE platform was created by researchers, for researchers, it is our mission to continually improve the platform to make its usage as easy, enjoyable, and fruitful as possible. Researchers who use the RESEARCHERS.ONE platform are also encouraged to use preprint servers and other means to self-archive and disseminate their work.

Objection 10. *Why is it necessary to create a new platform to implement this idea? Why not first implement a proof-of-concept at an existing journal?*

Response. It is antithetical to the RESEARCHERS.ONE mission to implement these ideas at existing journals, whose policies and procedures violate our core principles.

Objection 11. *Why not leave public referee reports posted after publication?*

Response. Since non-anonymous reviewers, who have no accept-reject power and therefore no power to push their own agenda, are likely to give honest feedback, the authors are similarly likely to incorporate the reviewers' suggestions into their final publication. In such cases, these pre-publication referee reports become irrelevant once any proposed corrections have been reflected in the published article, and we see no need to keep them on the site permanently. (As mentioned before, authors who wish to publish their peer review histories are welcome to do so at their own discretion.) In cases where the authors ignore certain reviewer feedback in the published version, reviewers are at liberty to post their comments again as a post-publication review. Post-publication reviews are publicly visible and cannot be removed by author or reviewer. All users are free to add post-publication commentary, and authors are free to respond.

Objection 12. *Why would I review for* RESEARCHERS.ONE *if my feedback does not matter in the decision of whether the work is publishable.*

Response. First, just because there is no official editorial decision does not mean that reviewer feedback has no impact on the publication decision. With autonomous publication, if the authors choose to undergo peer review, then they are signaling their intention

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[22]This permanency is required to set a record of what is known at a given point in time.

to take reviewer feedback seriously prior to publication. If a fatal mistake is found during peer review, the authors may opt not to publish their work at all.

Second, the role of peer review is to improve the quality of scholarly work, not to exert power over other researchers. This primary role of peer review is emphasized in the RESEARCHERS.ONE publishing platform. As mentioned above, reviewers who make thoughtful and substantive comments are likely to make a significant and lasting impact on the final published product. This impact will be realized in influencing substantial additions, modifications, and revisions of the eventual published product.

Third, since RESEARCHERS.ONE is a publishing platform, not a journal, and publication confers no immediate status to any given article that appears on this platform, the ostensible purpose of accepting and rejecting articles becomes moot. Even in the current accept-reject paradigm, it is impossible for a reviewer to stop determined authors from publishing at some outlet, but the reviewer can still have an impact on what gets published by making convincing and worthwhile arguments in the referee report.

Objection 13. *Why are reviewer comments non-anonymous? Reviewers are more likely to give honest, critical feedback if their identities are kept private.*

Response. Within the current (pre-RESEARCHERS.ONE) system, negative or critical reviewer comments can (and often do) lead to rejection, explaining the appeal of the anonymous refereeing process within the present model. But the appeal and value of anonymity is conditional on the role of peer review as a mechanism for making accept-reject publication decisions. Because such decisions have important implications for the authors' careers, it is understandable that anonymous reviewing is the current norm. But on the RESEARCHERS.ONE platform, there is no accept-reject decision and therefore no way for authors to retaliate against critical reviewer comments even if they want to; hence, there is no reason for and no benefit to anonymity.

Objection 14. *If the goal is to fully decentralize, then why should research outputs be hosted in a central location such as RESEARCHERS.ONE?*

Response. To the extent that it becomes feasible in the future, we are open to new technologies that would make fully decentralized publishing a reality. To the best of our knowledge, such a technology does not currently exist. For now, the RESEARCHERS.ONE objective is primarily to decentralize authority, out of the hands of mega-publishers and editorial cartels and into the hands of individual researchers. We are supportive of this objective however it can be achieved, and would fully support the decision of individual researchers to decline the use of any centralized resource to the extent that this can be achieved independently of the RESEARCHERS.ONE platform.

Objection 15. *Your proposal will not work because _____.*

Response. In *The Future and Its Enemies*, Virginia Postrel [18] contrasts two different perspectives on the messy, unpredictable process by which new ideas are born. In Postrel's classification, *stasists* fear the unpredictable trial-and-error process, either as reactionaries (who oppose progress) or as technocrats (who try to control it). *Dynamists*, on the other hand, embrace the uncontrollable and self-organizing nature of progress. In the words of Larry Wasserman [26], our current peer review system is a "technocratic swamp", a Byzantine maze of editors, coordinating and managing editors, editors-in-chief, associate editors, society presidents, section leaders within societies, and on and on. The resistance

of such organizations to change ensures continuity and stability, and this robustness in turn calcifies and exacerbates the problems with the current peer review paradigm.

To restore peer review to its original purpose, we embrace the dynamist viewpoint by removing constraints and allowing a new structure to emerge as a result of individual researchers acting however they deem appropriate. Out of such individual behaviors will arise a new self-organizing system. In RESEARCHERS.ONE, we have implemented a revolutionary new model for peer review and scholarly publication. As with any new proposal, there are many unknown aspects of this system. Until proven otherwise, these concerns remain of a *theoretical* nature, as time will tell what impact, if any, these unknowns will have on the viability of the platform. On the other hand, the many issues with the current system laid out above reflect *real* problems which have not gone away despite endless clamoring, complaining, and theorizing about what must be done. Rather than theorize as to what the structure of this system ought to be, we, as dynamists, prefer to let it develop naturally. We have set this trial-and-error process in motion with our creation of RESEARCHERS.ONE.

6   Concluding remarks

The first implementation of the RESEARCHERS.ONE platform was brought about by personal funding of the present authors. Though the initial platform is fully functional in each of the components mentioned above, there are numerous ways that this platform can be expanded as researchers from different communities discover new and creative ways to use it. The platform will be sustained by the $10 per article submission charge and tax-deductible donations from individual supporters.[23] RESEARCHERS.ONE will be enhanced with additional features based on user feedback and availability of funds.

For further information, please visit our website `www.researchers.one`, follow on Twitter at `@researchersone`, or contact us directly at `contact@researchers.one`.

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