Dear Editor,

Herein is my response to manuscript ID CiSE-2018-08-0140, entitled" A Community Of Practice Around Peer-review For Long-term Research Software Sustainability", by Karthik Ram and colleagues to the journal Computing in Science and Engineering.

The authors present a discussion of the rOpenSci project and its software peer review system. This is generally a very well-written, concise, and important paper, and I have only a few questions and comments suggested for the authors, none of which should interfere with publication here. I should also note that I'm not an expert on software, as a palaeontologist, and my relevant expertise here comes more from looking at innovations in peer review. Which is also why I believe this paper to be both timely and important.

I strongly recommend that the author deposit either the pre-print of this manuscript, or the post-print, in a public repository such as arXiv, as it deserves to be as widely read as possible.

Abstract

- Many people might not know what the Ligo project is or what it achieved.

Introduction

- It might help readers here to clarify explicitly what you mean by 'unsustainable'.
- Can you make it clearer what the precise link between unsustainable software and the reproducibility crises is?
- Page2, Lines 29-31. I wonder if here it might be worth mentioning that scientists might often design software for a single purpose or application, with little thought to the longer term or wider usage of that software. Another problem is that software created in academia is not subject to the same level of scrutiny as that created by software communities. For example, it is quite strange that little or no consideration is ever given to software or data shared as part of scholarly publications, and it is rarely checked as part of the peer review process. Indeed, getting recognition for software is a kind of weird process at the moment, as typically it has to be packaged up as part of a traditional journal and manuscript-based process. Which is a bit silly.
- Just a question for the authors that might be worth considering, do you think perceptions about software sustainability are changing? In line with changing government mandates around open science, and increasing concern about reproducibility?
- Page 2, Line 44: I think these are just collectively known as 'The Carpentries' now? Also, the Open Science MOOC (which I run) is working on training students/researchers more on these things too (see eg here), which might be worth mentioning. I'm obviously biased..
- Page 2, Line 54: Who is 'us'?
- Page 3, line 19: Not clear what these 'two major things' are, based on the next paragraphs. Just highlight this a little more to make it clearer.

- For the R packages, do you perhaps have any idea of usage statistics here? That would be really cool to emphasise the transformative impact that rOpenSci has had across many research fields.
- For the peer review paragraph, I wonder if it might be worth highlighting that what you've kind of done is combine some of the best aspects of open source (e.g., open collaboration) with the best aspects of science (e.g., rigorous and reproducible research) to create a really strong community around rOpenSci. That's sort of the impression I get. And it might be worth noting the results of Prechelt et al. (2017) here on how the community considers the current status of peer review in software engineering (https://arxiv.org/pdf/1706.07196.pdf).

Challenges with research software

- Maybe for each section here, describe briefly what they actually mean? People not familiar with software might not know, for example, what documentation actually is. Would help this paper appeal to a wider audience.

Software review as a service

- What do you mean by 'the review process is fully open' in this regard? There are a lot of potential interpretations for this: https://f1000research.com/articles/6-588/v2 (this issue again on page 6, line 13).

Advantages and limitations

- Page 6, lines 46-49, I have pretty much no idea what any of these things are. I think given that you are trying to make the case that software sustainability, and its advantages, are useful for the wider research community, being careful to explain any specialist terms like this is important for accessibility.

Incentives

- Page 7, line 51: Publications, which are sort of like a boxed up package that act to provide a narrative/advert for research, and the actual communication of the process of the research itself is often an afterthought.
- Is it not a bit weird again that we are still submitting software to the same incentive systems that are based around journal systems? Does the increasing importance of software trigger the need for a greater diversification of research evaluation processes, rather than just a narrow focus on citations? For example, the research community digests and re-uses software much more differently than it does for research papers, and this means that we need to look at different ways of providing credit for these things (see here for some discussion on this matter: https://academic.oup.com/femsle/advance-article/doi/10.1093/femsle/fny204/5078345).
- For example, we don't want to just provide incentives for engagement, but for high quality engagements, which is possible through software-based process which are more collaborative, and a sort of 'reviewing the reviewers' system. So it might be possible to do things like create virtual rewards such as points, badges, or abilities that capture the altruistic nature of software development and couple it to the development of researcher profiles. Having incentives based on social processes rather than journal brands seems like a nice future to me.

General comments

- I know this paper focuses on rOpenSci, but I wonder if it might just be worth adding a nod to some of the other initiatives out there too? For example, *ReScience* (rescience.github.io), created to publish replication efforts in computational science. And the ACM task force on data, software and reproducibility in publication: https://www.acm.org/data-software-reproducibility (some other examples given here: https://f1000research.com/articles/6-1151/v3).

Congratulations to the authors on a great piece of work, and I look forward to seeing their research published and helping to create a better software environment for research in the future.

Sincerely,

Jonathan Tennant