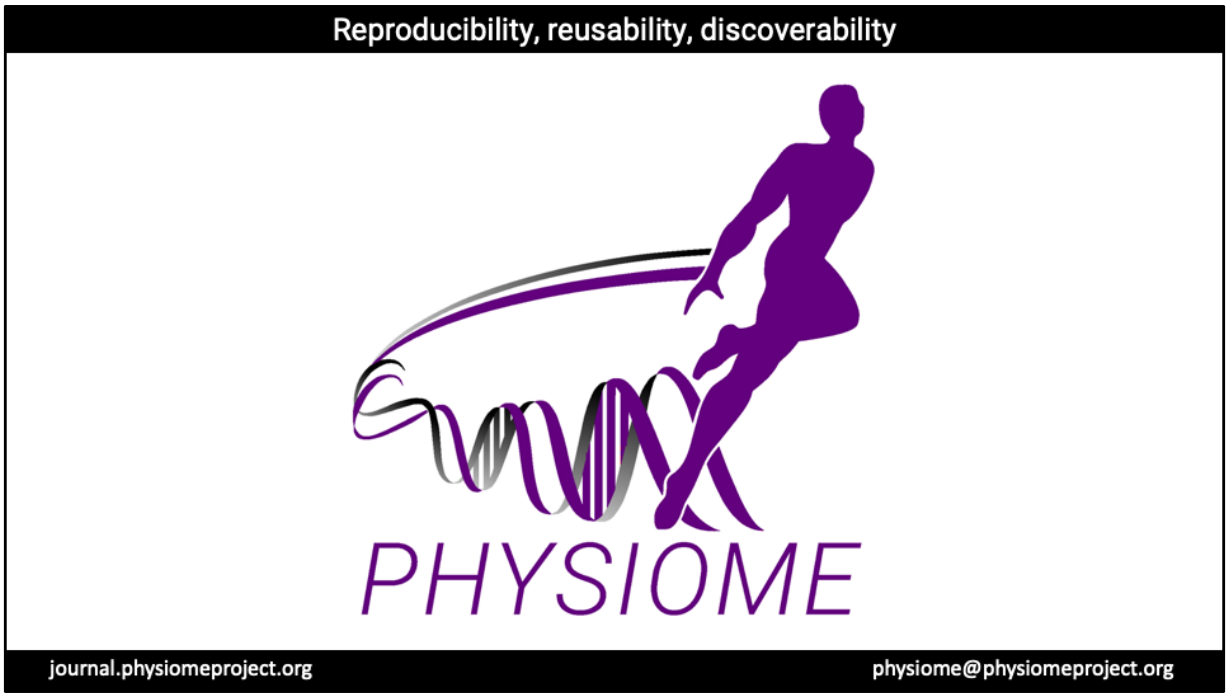
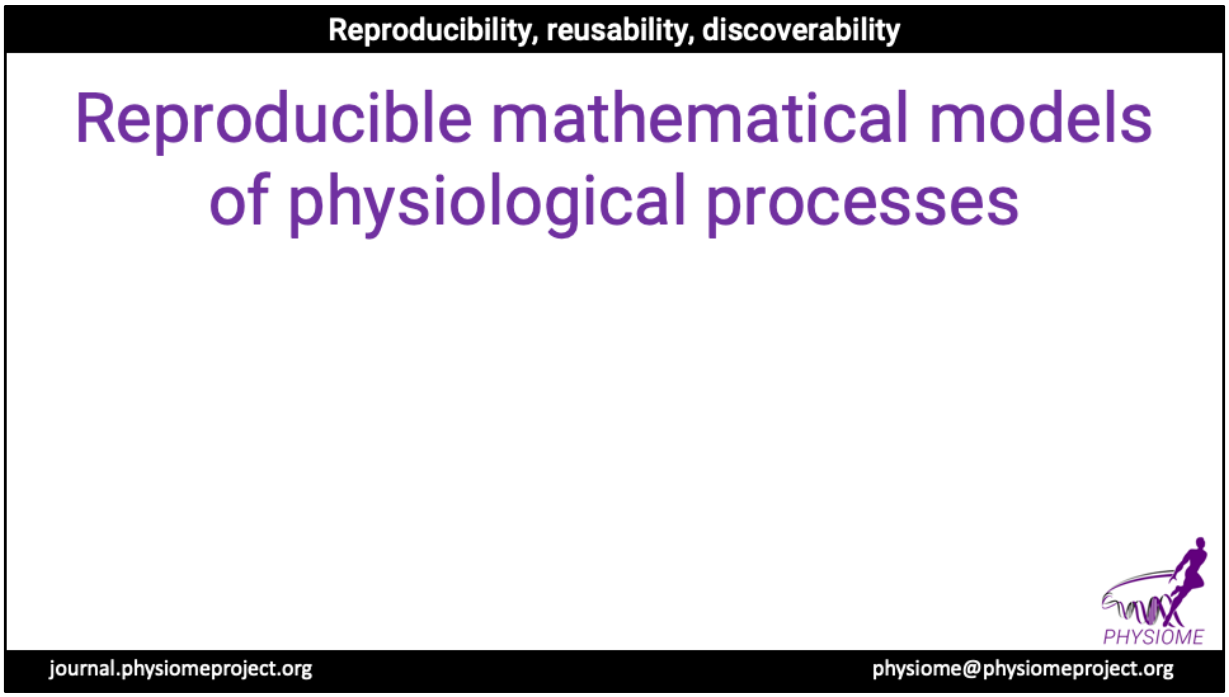
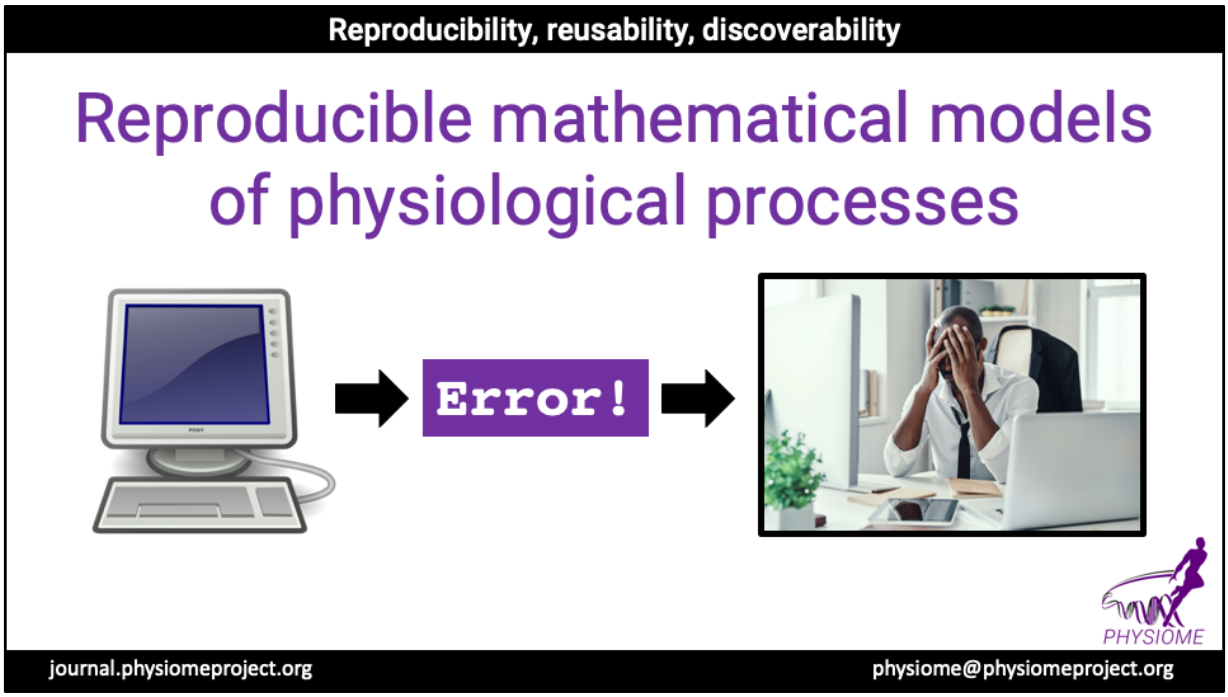


We have launching a new journal, *Physiome*,

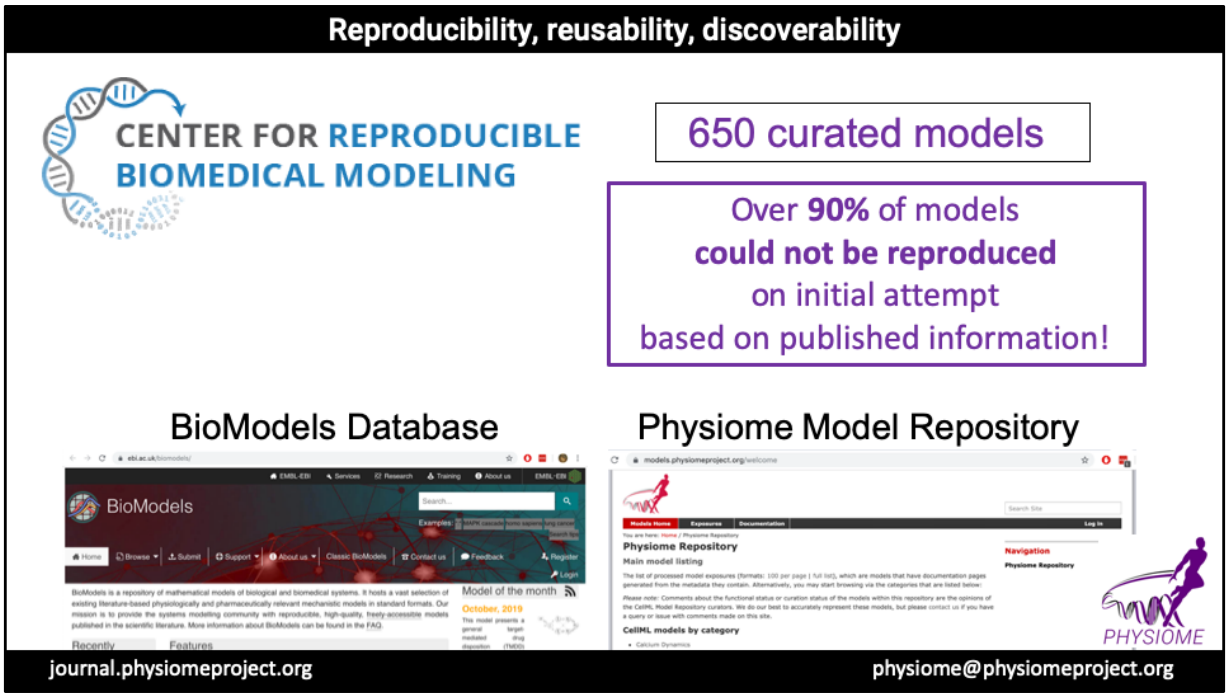


and it is all about reproducibility of mathematical models of physiological processes.



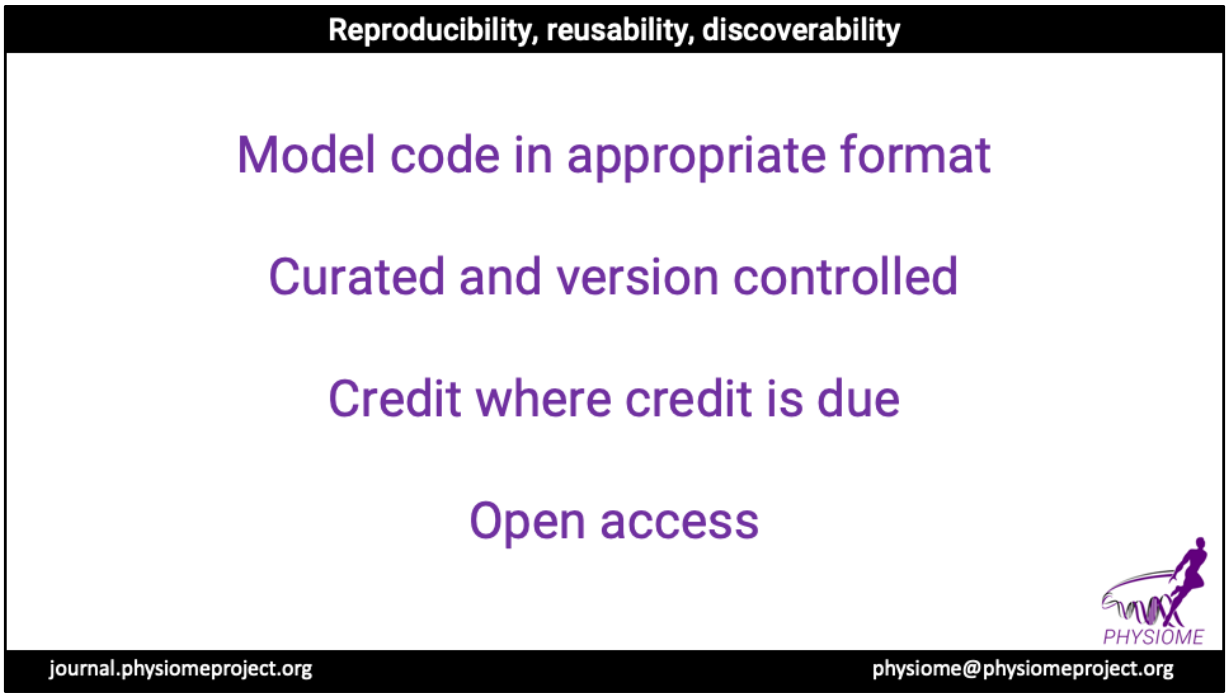
Computer models should be easy to reproduce, because code is easy to share and consistent, and yet, anyone who has tried knows that it is common to have lots of things going wrong.

This is intensely frustrating, but even worse it how this effects our scientific output.

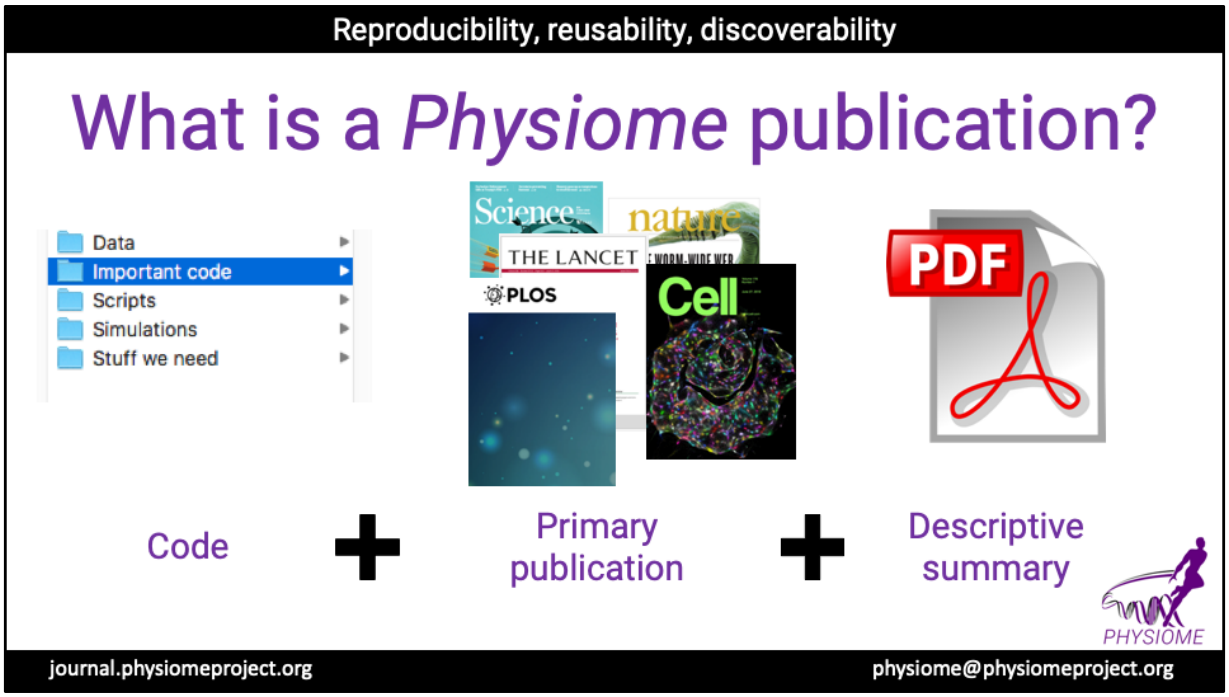


Example: Center for Reproducible Biomedical Modelling looked at how reproducible models are. They looked at approx 600 models in the two repositories, including the code submitted for the publications, in these repositories.

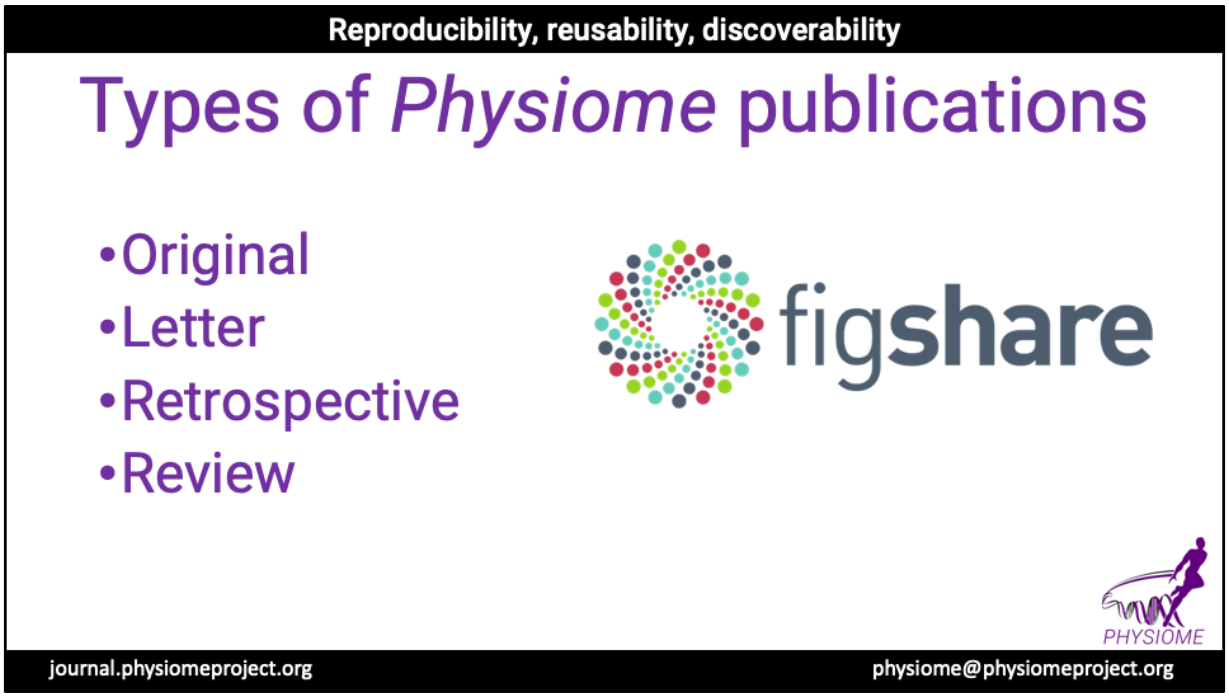
90% On those models could not be reproduced from the original publication. Some could not even be reproduced by the group that published them in the first place. Even if the code is in the repository, it is not necessarily working.



This is what *Physiome* is trying to fix. We help authors make their models available in appropriate formats by publishing the curated and version controlled code.
It is hard to get citations for models -> less funding.
Open Access, of course.
FAIR = Findable, Accessible, Interoperable, and Reusable

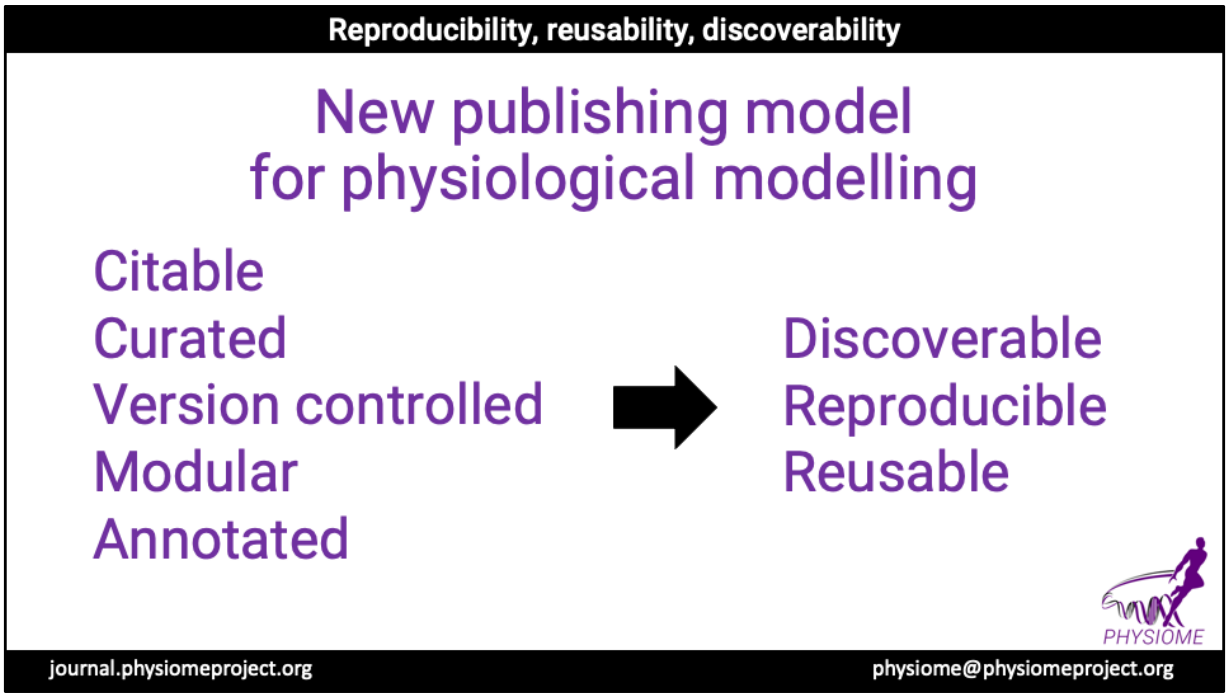


What is a Physiome publication?
Code (curated, reusable, everything needed to run the model), this is the most important part of the publication
Primary paper (validation) domain specific, peer reviewed journal. We are a secondary journal.
Pdf (descriptive summary)



Original = Once primary article is published you can publish your model in Physiome
Letter = Minor changes to already existing model not big enough to be a new article
Retrospective = older model from other group
Review = review of models of the same organ etc

Publish on figshare



A new publishing model for physiological models is needed, and we try to provide that.
Citable – discoverable, curated and version controlled – reproducible, => reusable.
Even more with modularity (download and combine) and annotation (context) in a perfect world
Open access for immediate download and execution

We will make the model code citable, curated and version controlled, and in the best of worlds modular and annotated.

Our webpage if you want to read more about our philosophy.

Overleaf

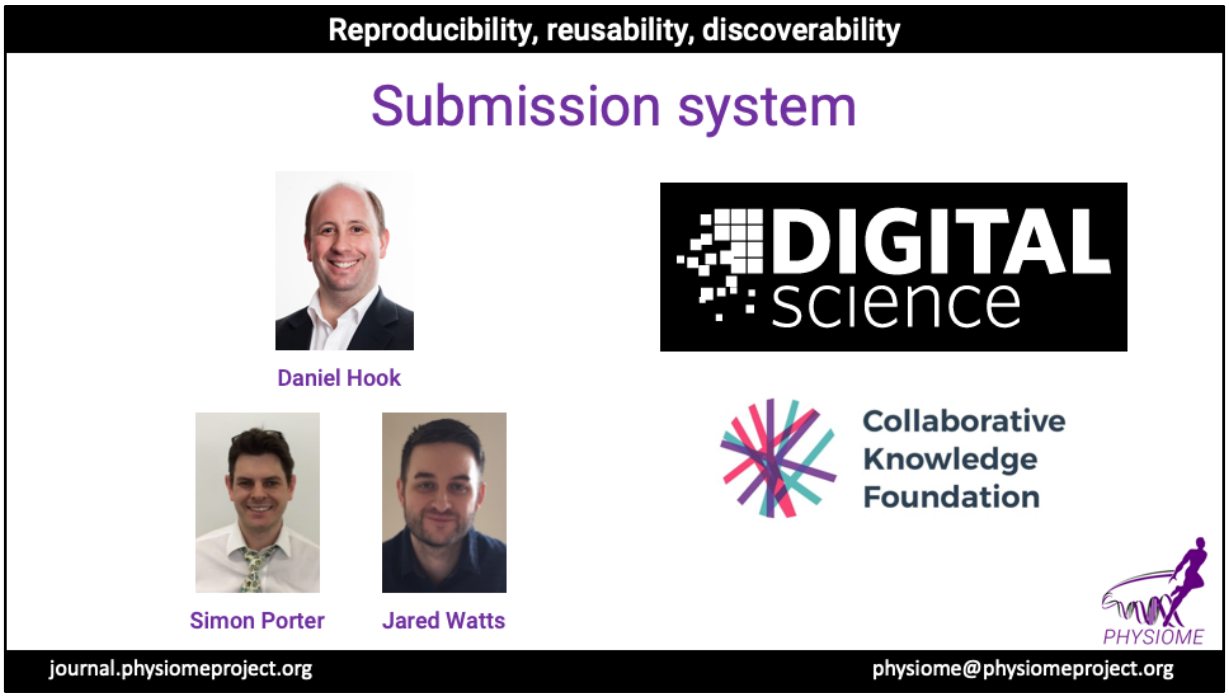
Manuscript template

https://www.overleaf.com/latex/templates/physiome-journal-article-template/kfbqwxxmtsfv

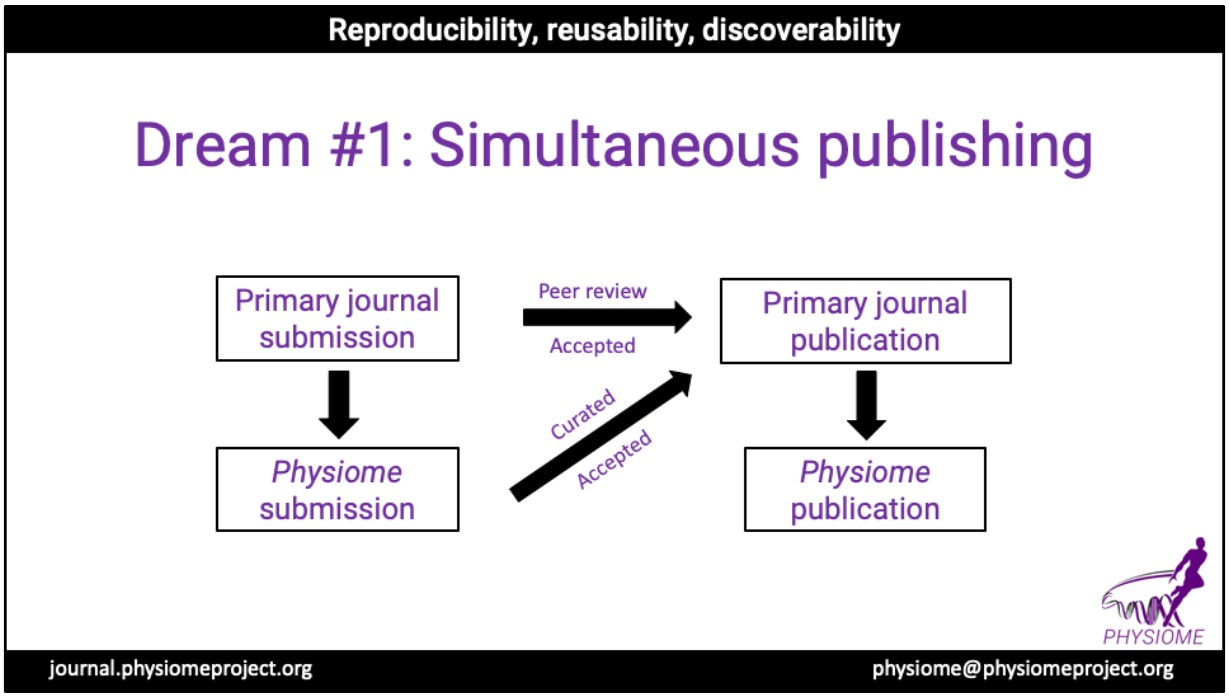
PHYSIOME

If you want to publish, we have a manuscript template available on Overleaf

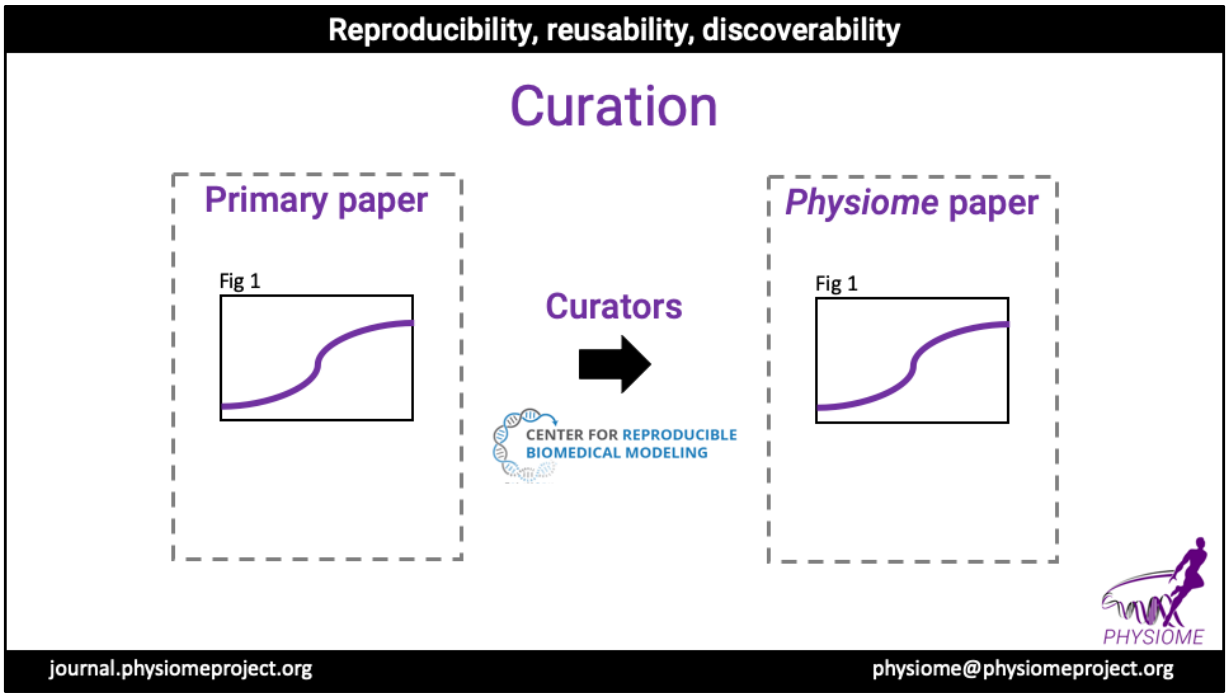
This is our submission system. Log in with ORCiD. Code of the system is available open source on github, is anyone is interested. Thank you to coko foundation and Digital Science.



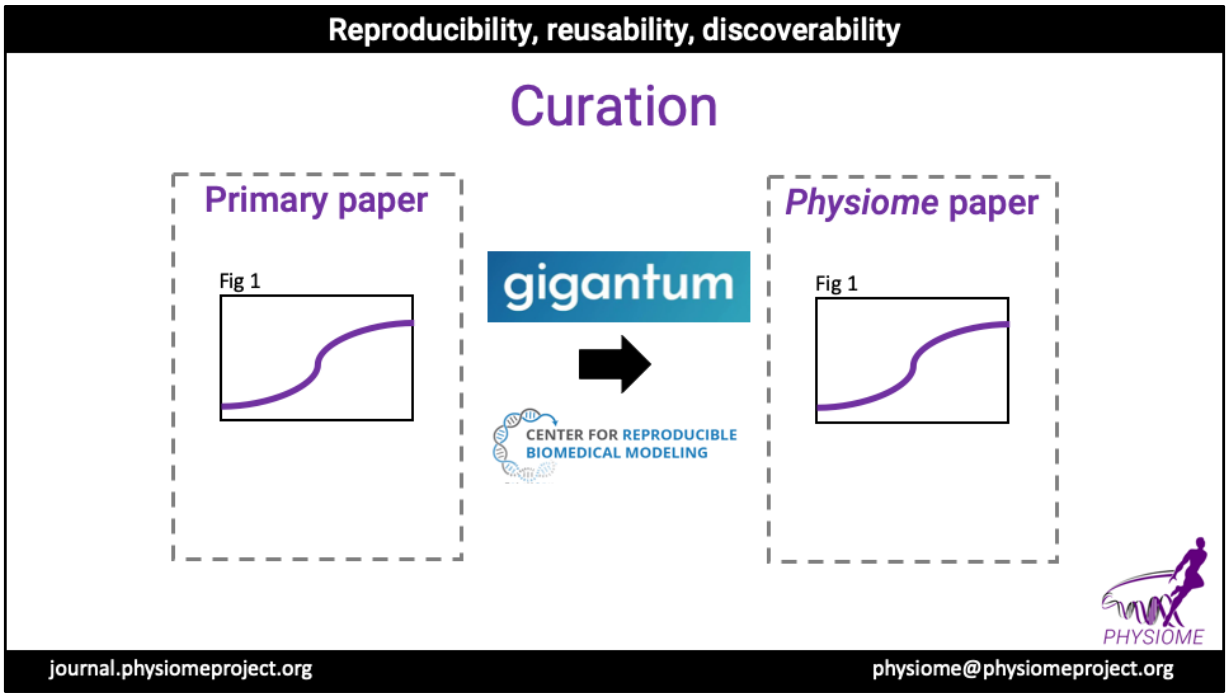
We are building it in collaboration with Digital Science, who have kindly lent us two excellent programmers to develop the submission system.
Digital Science building it on top of the coko foundation.
Code available on GitHub, open source



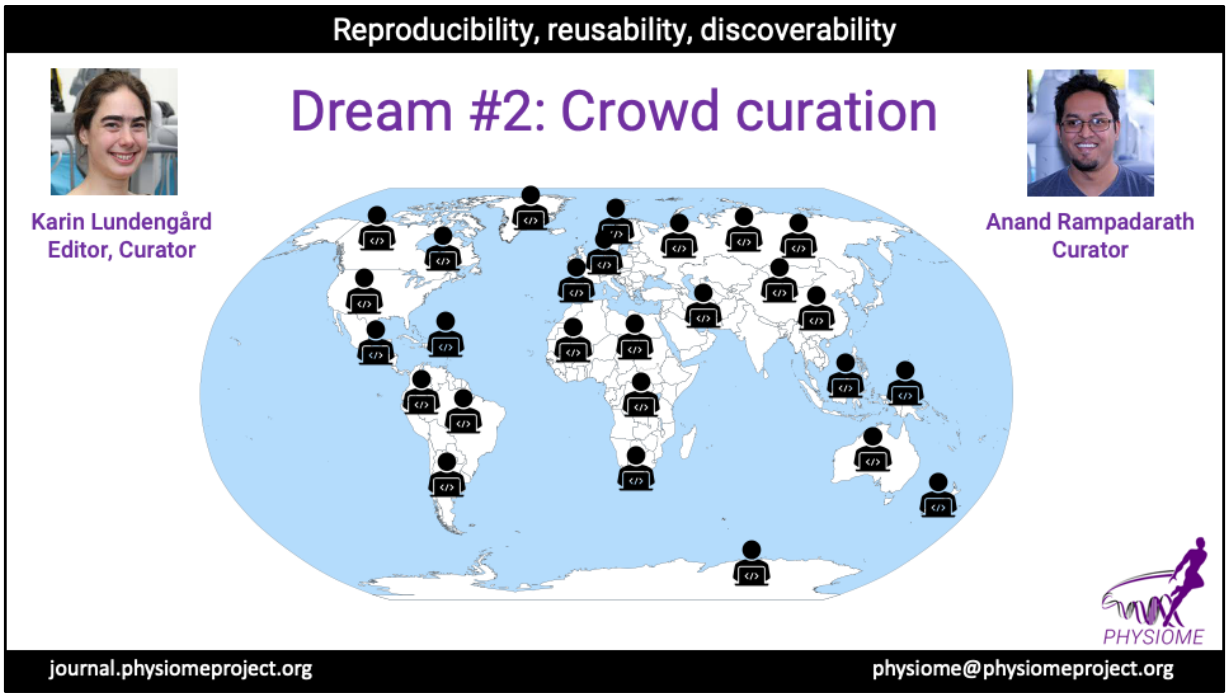
Simultaneously submit to Physiome, possibly through the Primary journal.
We do curation and evaluate reproducibility, and report back to the Primary journal.
Primary journal peer review as they normally do.
If the primary journal decides to publish, Physiome will publish after, making the code available at the time the Primary Journal wants.
Complement, not competition. We don't need to be first, we just want to be forever.



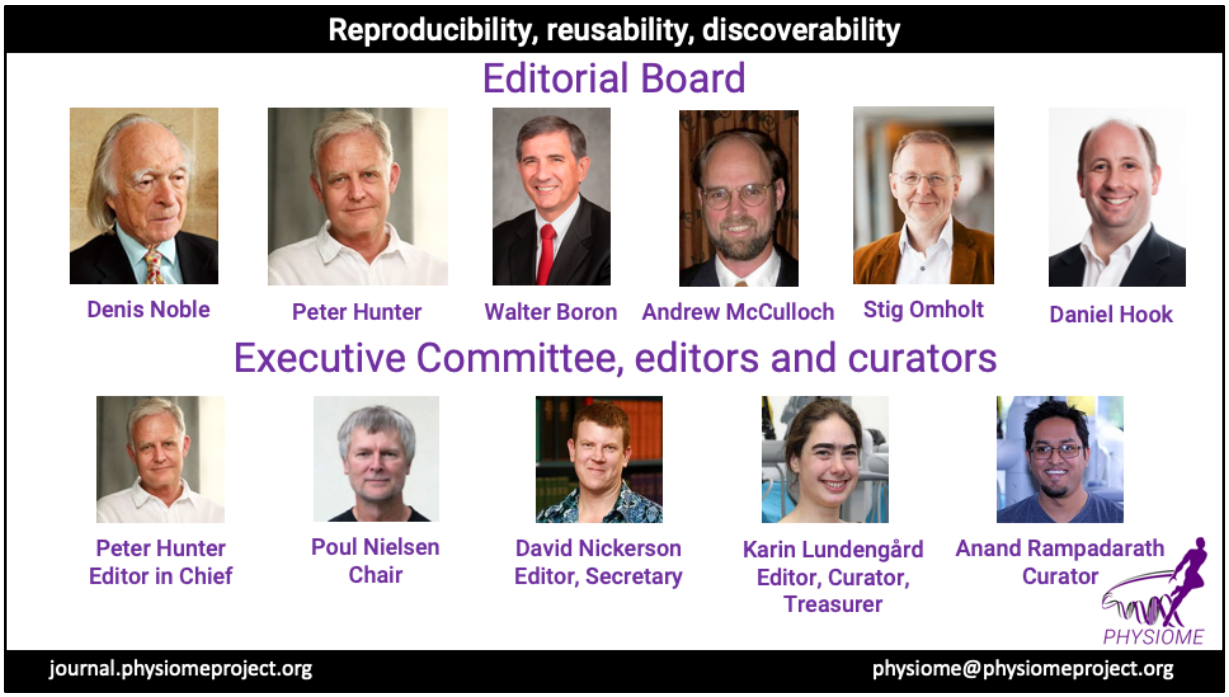
Another thing that Digital Science is helping us with is the curation. Right now it is manual. Curators download the code and test: run, equations, reproduce predictions and other simulations (the output presented in primary publication) using the submitted code and instructions.



Collaboration with the Centre for Reproducible Biomedical Modelling -> reproduce model building.
How to capture reproducible workflow and larger scale models – gigantum through Digital Science.

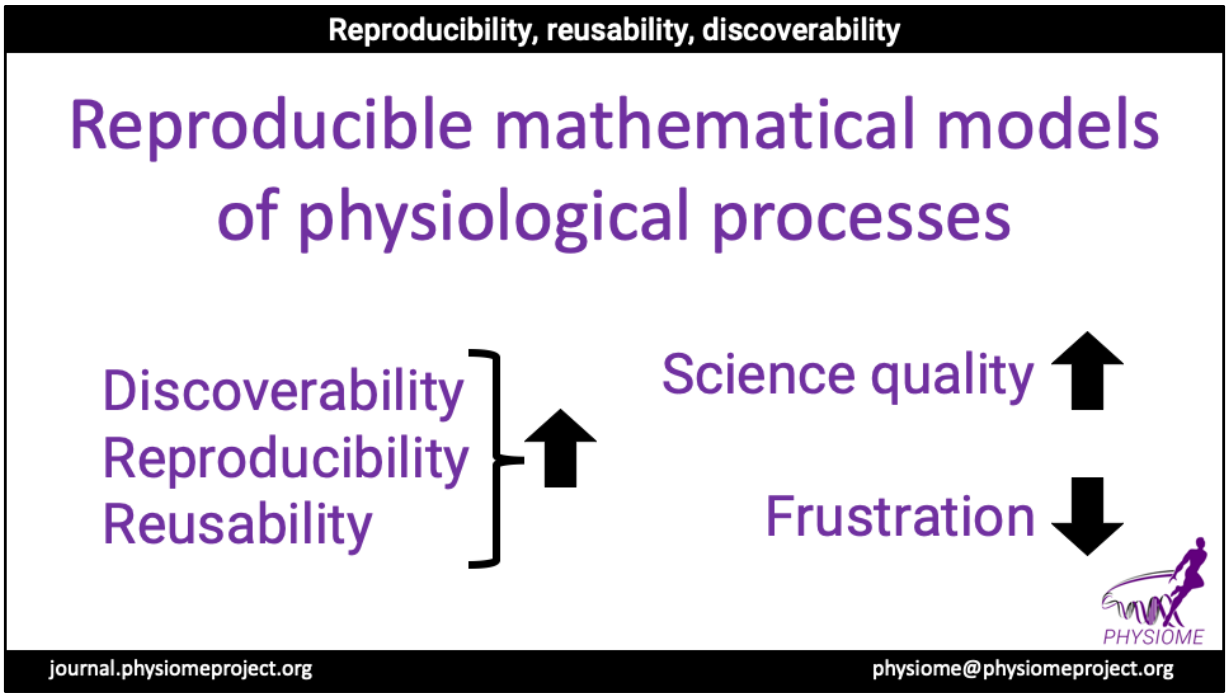


Right now we are two curators: capacity limited by our knowledge of models and programming languages (and biology).
I want a network of curators from everywhere: crowd curation.
Platform where experimentalists can discuss and wish for models, to increase their visibility and usefulness.



Denis Noble, Oxford University
Walter Boron, Case Western Reserve University, Cleveland, USA
Andrew McCulloch, University of California San Diego
Stig Omholt, Norwegian University of Science and Technology
Peter Hunter, University of Auckland
Daniel Hook, Digital Science

Organisations that support Physiome



Summary: Physiome will promote reproducibility (through curated model code), discoverability (citations and open access to the code), both of which support reusability.
So if we increase all of these, we improve the quality of our scientific work and hopefully reduce some of the stress and frustration in our community

Reproducibility, reusability, discoverability

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