

The Heliocentric Model of Open Science Documentation

Understanding Scientific Information Stewardship

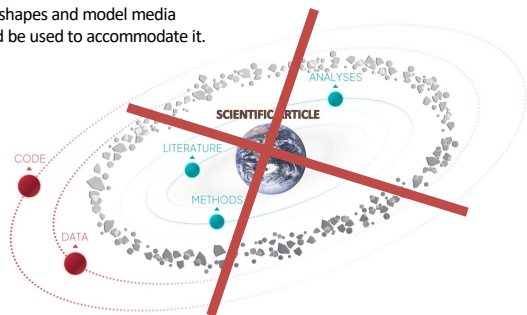
Top-Down and Bottom-Up v6 29NOV2024

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1. Do away with a paper-centric model of documentation

Scientific documentation should not be constrained by the limits of the out-of-date research article. Scientific information takes many shapes and model media should be used to accommodate it.



Helio uses labor as the basic unit to breakdown scientific processes for documentation. These satellites are not mapped to sections in a paper but to components of scientific processes, as instantiations of the scientific method, and as the labor needed to complete them. This presupposes that scientific processes and their components will vary according to discipline.

The paper is demoted to become the narrative. In this way it assumes the role it has in practice which is to function as an extended abstract with links to detailed, usable descriptions of the labor and labor products of the scientific process.

RESULTS

NARRATIVE

SCIENTIFIC PROCESS

ANALYSES

DISCUSSION

QUESTION BACKGROUND

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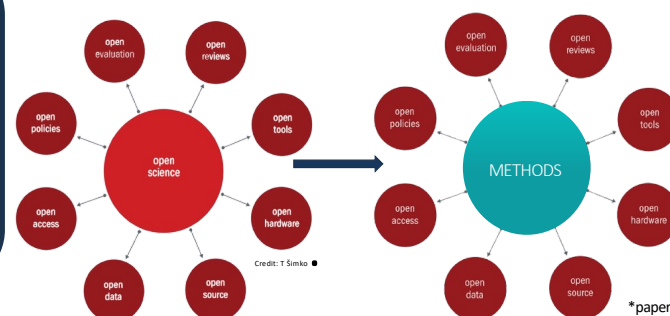
The methods satellite below shows some of the labor involved in completing the methods component of a human science study. These details are indispensable to understanding how to interpret and potentially reproduce a study. They are also indispensable to accurate peer review. Current documentation practices either grossly under-describe or completely omit these needed details.

3. For optimal communication, allow the labor of the scientific process to determine: a. What needs to be documented b. How it should be documented

It doesn't matter how sophisticated a machine learning algorithm might be or what A.I. can do, the ultimate interpreters of scientific information will always be people. Hence, we must document so that information is usable and understandable by people.

Golden Rule:
Documentation
is for
communication
with humans

Helio provides needed structure to Open Science efforts by helping map tools, infrastructure and other resources directly to components of the scientific process, thus reframing them as being directly at the service of documenting **complete** research processes for posterity.



Credit: T Simko

*paper with collaborators forthcoming

The documentation tools we build are meant to serve the components of the scientific process, not exist independently: **Data without its context is meaningless.**