

Decentralizing peer reviewing to increase transparency, quality and reliability

Elena Pérez Tirador

Universidad Complutense de Madrid

Decentralized Science

elena@decentralized.science

Antonio Tenorio-Fornés

Universidad Complutense de Madrid

Decentralized Science

antonio@decentralized.science

Academic publishing is a complex process involving multiple actors[1]. For most of them, the process can be perceived as unfair. Publishing is controlled by an oligopoly of big publishers [2], on which most journals and conferences have to rely in order to get their content published. Authors and readers and their institutions are usually charged for publishing and accessing this content [3], often being charged expensive prices by commercial journals [4][5]. However, the profits are made mainly by the publishers.

There is also another unpaid work, which is the work of the reviewers that verify whether an article is worth publishing or not. This work is done for free, with little subsequent recognition or reward [6]. A consequence of this situation is that it is hard for the editors to find reviewers that are both suitable for a certain article and that answer and do the reviews on time.

To face this problems, Decentralized Science¹ [7] aims to create a distributed science publication system, in which traditional publishers are not necessary, and the peer reviewing process is simplified and fairer. To achieve this goal, decentralized technologies such as blockchain and IPFS are used.

The project proposes a decentralized peer reviewing and publishing infrastructure, where articles and peer review reports can be publicly shared. This ecosystem would enable the creation of a network of reviewers, with reputation metrics that show their quality, and reliability. The system will provide a way for editors to find good reviewers for the articles they need and a way for reviewers to have their work and effort recognized.

¹<https://decentralized.science>

After a first phase of product research using Lean Startup methods [8][9], we have identified the main needs of independent journal editors, conference chairs and reviewers. This research led to our current Value Proposition proposal [10], with three main functionalities:

1. A specialized search for reviewers
2. Reviewers' reliability metrics
3. Transparent Peer Review processes

These functionalities are currently being tested with pilot customers. The development will follow agile methodologies [11], to better fit the needs of the academic community. The tool will be integrated in existing peer reviewing software such as Open Journal Systems [12], and its architecture will be decentralized gradually. We encourage interested academics to engage with us as early adopters, as the current phase of research and development will shape how we can improve academic peer reviewing.

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