

# A Decentralized Publication System for Open Science using Blockchain and IPFS

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# Who am I?

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# Open Access and Open Science

- ◇ Opened articles, data, methodology, peer review...
- ◇ Reduced cost to access science
- ◇ Reproducibility, transparency, rigor, fairness...

# Science Publishers

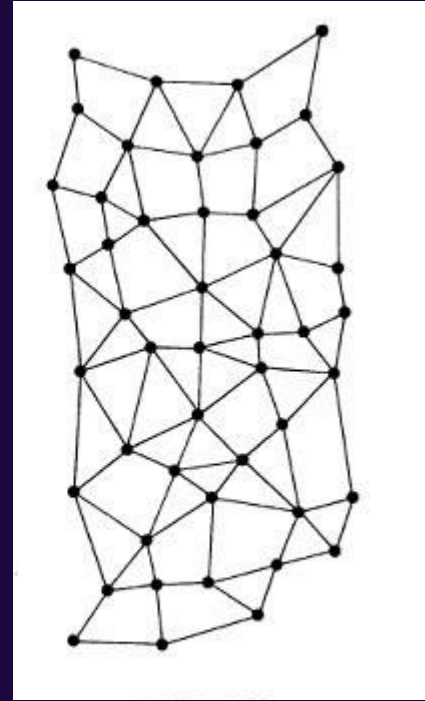
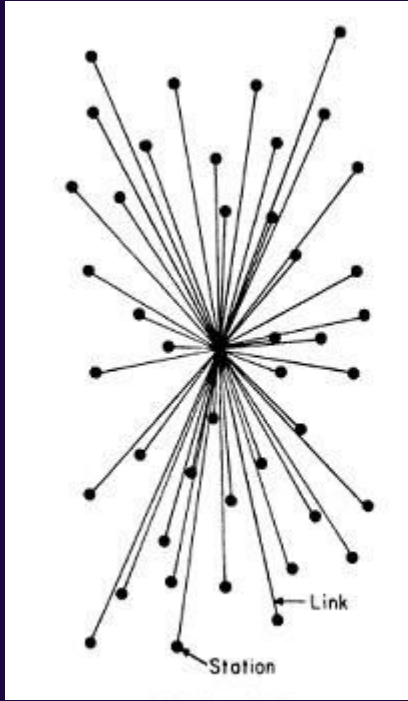
- ◇ Oligopoly
- ◇ **Infrastructure control**
- ◇ Concentrate profits
- ◇ Impose policies (copyright, prices...)



# Decentralized infrastructure



# Centralized vs Decentralized



# State of the art

- ◇ Open Peer Review
- ◇ Reputation Networks for reviewers
- ◇ Blockchain infrastructure:
  - Storage and voting of papers (Aletheia)
  - Timestamping publication (Ledger Journal)
  - Incentivized experiment reproduction
  - Post Publication Open Peer Review (Pluto)



# Open access by design

## **Publishers infrastructure control**

Provide free access keeping the infrastructure control. Impose rules such as charging authors (Gold Open access) or restricting dissemination (Green Open access).

## **Decentralized infrastructure**

Academic documents are shared in a P2P network, granting Open Access by design and avoiding infrastructure control.







# Transparent Governance

## Publishers infrastructure control

Closed peer review communication.

## Decentralized infrastructure

Open peer review communication, recording each interaction in a **public, transparent and tamper resistant** ledger.

Could change acceptance dynamics exposing unfair rejections.



**BLOCKCHAIN**

# A distributed reviewer reputation system



## **Publishers infrastructure control**

Reviewers quality and reliability is held private by publishers and journals (and even editors)

## **Decentralized infrastructure**

A reputation system for reviewers opens reviewer quality information. Reviewers are rewarded for worthy, fair, and timely reviews, or penalized otherwise.



**BLOCKCHAIN**

# Discussion & conclusion

- ◇ New decentralized technologies such as Blockchain and IPFS could help to challenge the role of publishers and to realize Open Science and Open Access promises

# Raised issues

- ◇ Privacy (blind reviews)
- ◇ Career pressure
- ◇ New technologies challenges (scalability, cost, inclusiveness ...)
- ◇ Data availability

# Future Work and opportunities

- ◇ Alternative copyright models
- ◇ Alternative metrics
- ◇ Reputation systems
- ◇ Different levels of openness
- ◇ Decentralized Autonomous Journals



# Thanks!

## Any questions?

You can find us at:

- ◇ <http://decentralized.science>
- ◇ [@decent\\_science](https://twitter.com/decent_science)



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