



Blockchain for Peer Review

What is blockchain?

A public¹, permanent², append-only³, distributed⁴, ledger⁵

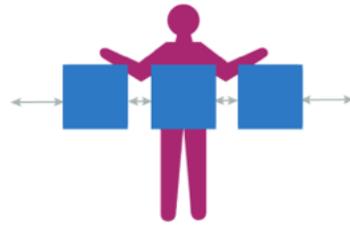
1. Some blockchains require permission to access, others are accessible to anyone
2. If properly set up, a blockchain is very hard to tamper with encoded data
3. Old transactions can't be changed, only new ones can be added
4. No single entity owns or controls a public blockchain
5. A shared ledger to record transactions

Building a blockchain.

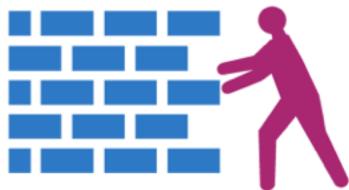
As each transaction occurs, it's put into a block.



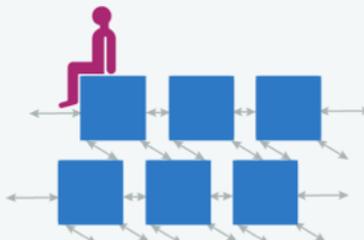
Each block is connected to the one before and after it.



Transactions are blocked together.



Each block is added to the next in an irreversible chain.



Applications:

- Cryptocurrencies
- Smart contracts
- IP & asset management
- Digital identity management
- Decentralized data store

The problem: peer review challenges

1

Critiques of lack of transparency & trust in the process

2

Fraud and manipulation

3

Difficulty identifying suitable (and available) reviewers

4

Lack of reviewer recognition

Blockchain for Peer Review - mission

By allowing parties in the ecosystem to share information around peer review activities, we can make the review process more efficient, transparent, and recognizable.

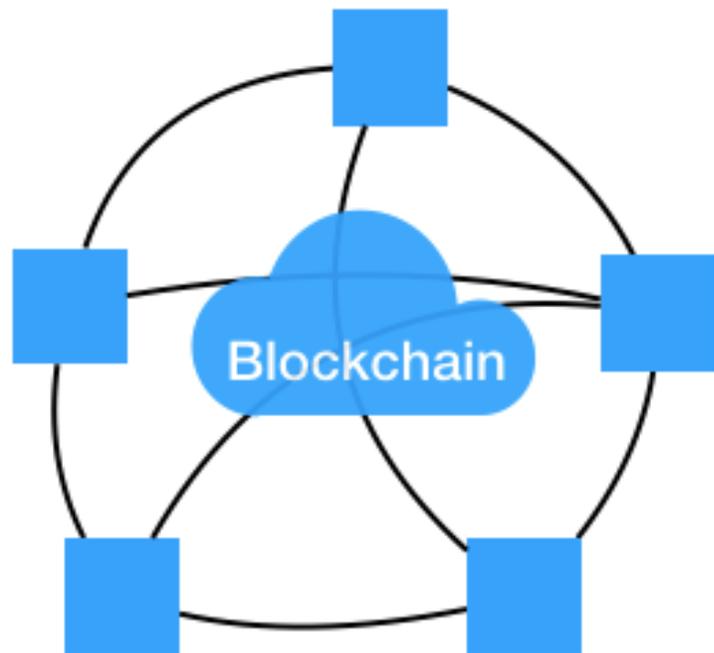
By storing and sharing review information on the blockchain, we can do this safely, without the need of a central gatekeeper, and fully complying to demands around review confidentiality and privacy.

Blockchain can achieve trust

- **Decentralized:** no single (commercial) owner or governance
- **Distributed:** everyone can host a copy of the data store
- **Transparent but pseudonymous:** Encryption can obfuscate identities and information where needed



Our initiative is focusing on improving three aspects of the review process



Recognition: information sent to e.g. ORCID, Publons, Institutions

Finding: we can build better or support reviewer finding solutions by ensuring complete review profiles, including reviewer's preferences and availability

Validation: review process can be independently verified & demonstrated e.g. by badges on journal pages

Founding Partners



SPRINGER NATURE

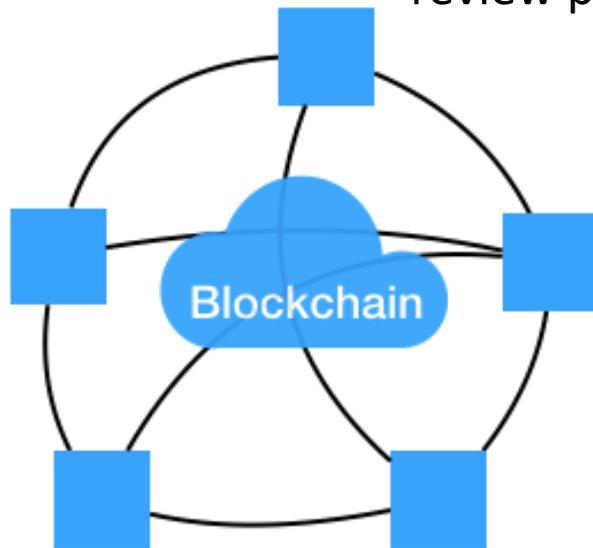
ORCID



The review blockchain architecture: applications for phase 1 and 2

Phase 1

- Review process stored and partially query-able on blockchain (three publishers, 45 titles)
- Validated information sent to ORCID review profiles



A screenshot of an ORCID review profile. The header shows "Peer Review (1)" and "11 Sort". Below the header, it says "review activity for F1000Research(1) journal, F1000Research". The main content is a table with columns: "Review date", "Type", "Role", and "Actions".

Review date	Type	Role	Actions
2015-10	review	reviewer	hide details view

Below the table, there is additional information: "Review identifier(s): DOI: 10.5256/f1000research.6964.r10949 | http://f1000research.com/article...", "Convening organization: F1000 Research(London, United Kingdom)", "Review subject: Conservation in the face of climate change: recent developments [version 1; referees: 3 approved] journal-article F1000Research.", and "DOI: 10.12688/f1000research.6490.1 | http://f1000research.com/article..."

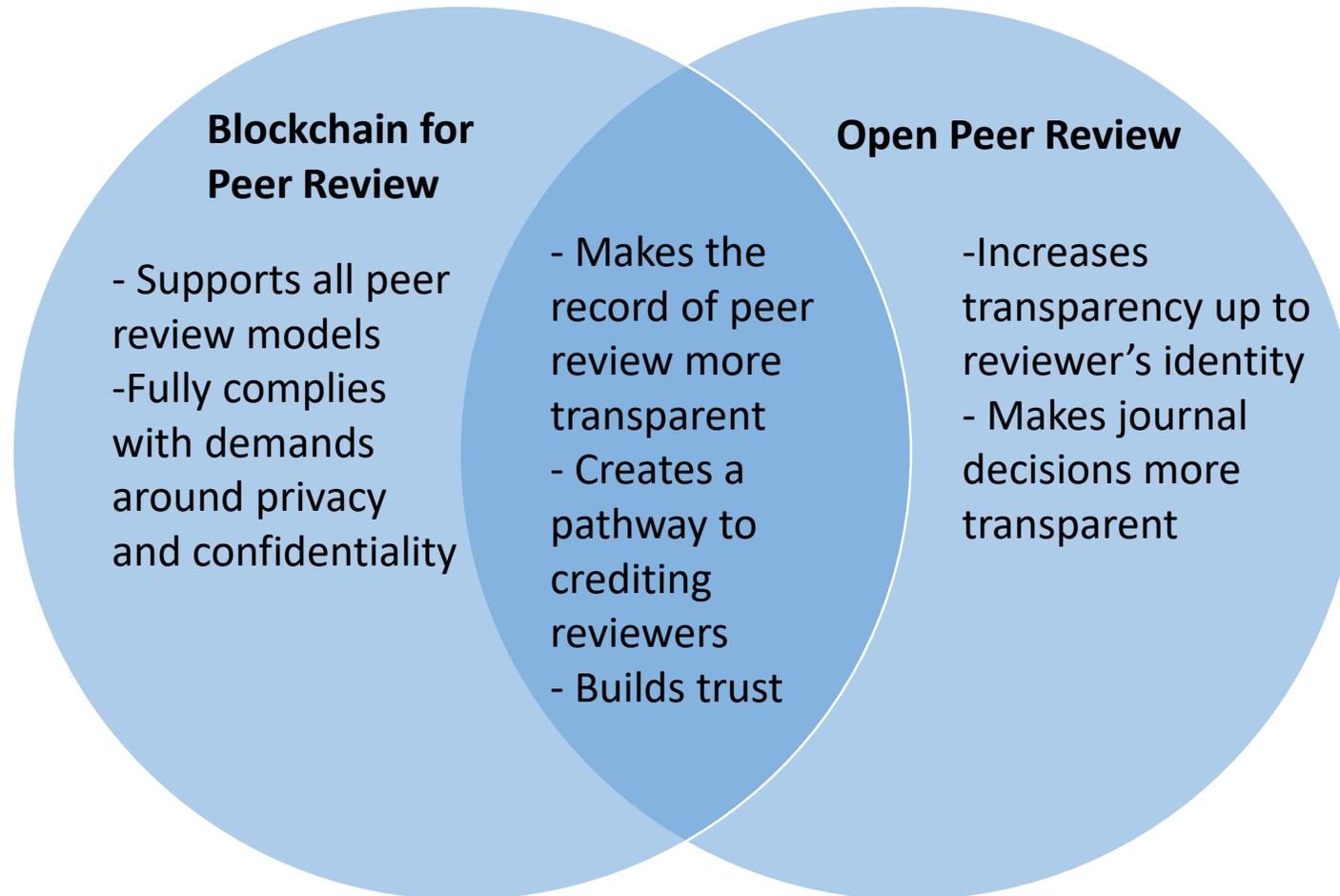
ORCID

Phase 2

- Expansion of titles/publishers
- Reviewers can indicate their interest and availability to do reviews via their ORCID profiles



This initiative & Open Peer review



Thank you!



Blockchain for
Peer Review

www.blockchainpeerreview.org

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