Communities and Next Generation Journals on DeSci Nodes

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DeSci Foundation

DeSci Labs

Challenges in Scientific Publishing and Peer-Review

- Market share of the 5 largest publishers increased from 55% (2000) to 85% (2023)[1]
  - >$12 billion revenue for scholarly articles in 2022[2]
  - Big 5 enjoy ~40% profit margins[3]

- Problematic business models
  - Pay-to-read creates access barriers for most people
  - Pay-to-write creates incentives for publishers to lower quality standards

- Scientists donate >$1.5 billion to publishers in unpaid peer-review time
  - 75% of journal editors say finding reviewers is the hardest part of their job[5]
  - “Black box” & doubtful quality

1: Crotty (2023), “Quantifying Consolidation in the Scholarly Journals Market,” Scholarly Kitchen, 30 Oct 2023.
2: Simba Information (2024), “Global Scientific & Technical Publishing 2023-2027.”
3: Lariviere, V. et al (2015), “The Oligopoly of Academic Publishers in the Digital Era,” *PLoS ONE* 10(6): e0127502.
4: Aczel et al. (2021), “A Billion-Dollar Donation: Estimating the Cost of Researcher’s Time Spent on Peer Review,” *Research Integrity and Peer Review* 6(14).
5: Publons (2018), “Global State of Peer Review,” https://doi.org/10.14322/publons.GSPR2018

What is needed

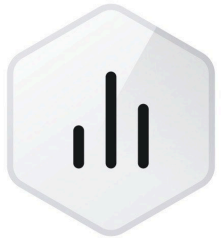
- Journals that are owned by the scientific community
- Alternative business models
  - No APC
  - No pay-walls
  - Rewarding high-quality validation & curation of science
- Greater transparency around peer review
  - What exactly was evaluated
  - Needs to be part of the scholarly record
- Rewarding referees for fast, high-quality work

DeSci Labs infrastructure for scientific communication

- DeSci Nodes (nodes.desci.com)
  - No paywalls, no publication charges
  - Open-state peer-to-peer storage network based on IPFS
    - Data sovereignty
  - Rich, versionable research objects
  - Free persistent identifiers for each research object and each file
    - FAIR by design - Findable Accessible Interoperable Reusable
  - Attestations highlight and validate characteristics of a research object
  - Programmatic publishing with nodes-lib library
  - Communities review, validate, and curate research objects in their feeds on the Nodes app
  - Open-source software (AGPL 3.0 license)

Attestations

- Verifiable claims about the characteristics of a research object
  - Claimed by author(s)
  - Verified or rejected during the peer-review process
  - Each claimed attestation has a unique persistent identifier linked to the research object



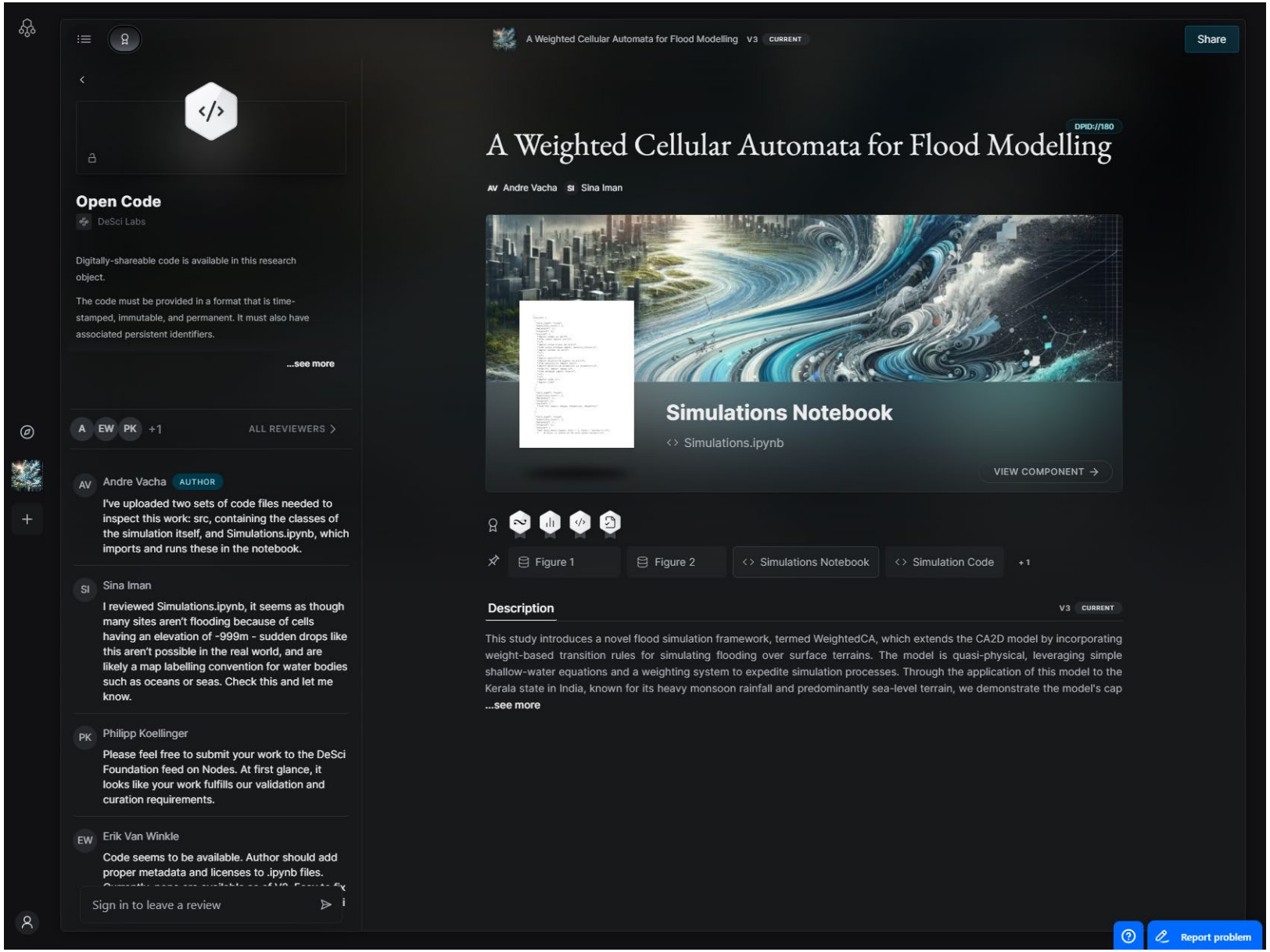
Open Data

- Defined and used by communities/journals
  - Structured peer-review

- Claiming an attestation opens a dialog between authors and referees
  - Within the context of the research object

Open Code

- Open vs. protected attestations
  - Open attestations can be validated by anyone
  - Protected attestations can only be validated by specific members of a community/journal



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Attestations on author's ORCID record

Associations between common genetic variants and income provide insights about the socio-economic health gradient

2024-05-21 | Data set | *Author*

Show more detail

URI: Open Data Root https://dev-beta.dpid.org/149/v5

Part of URI: https://dev-beta.dpid.org/149/v5/attestation/434

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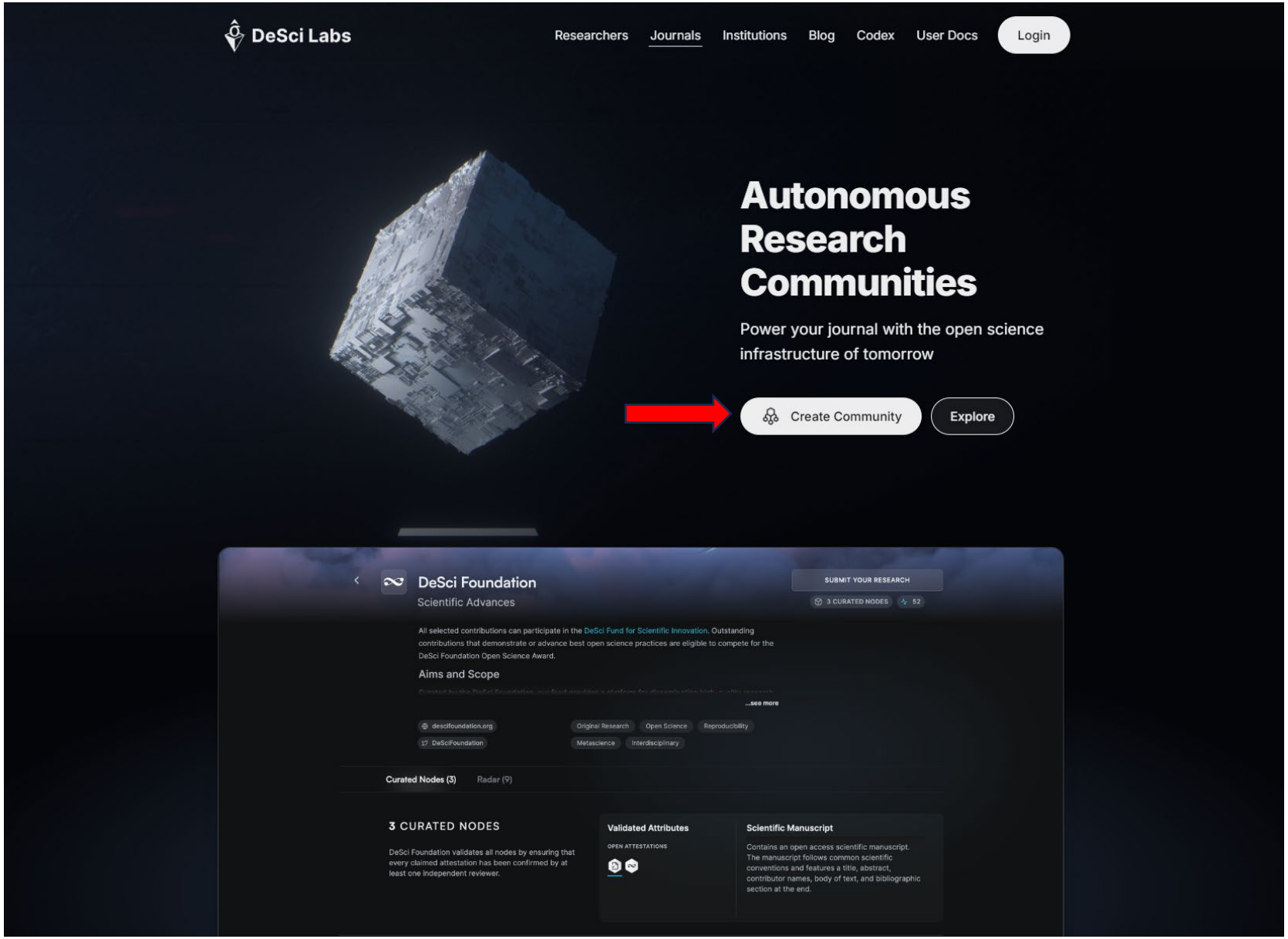
Source: Nodes

Communities – Use Cases

- Support infrastructure for journals
  - Journal of Risk Sciences
- Community feedback on early-stage research
  - The Behavioral Geneticist
- Organizations showcasing their research
  - E.g. BlockScience



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Journals

- In development
  - ETA of Beta version Q4/2024
- Capabilities
  - Editorial management system
  - Auto-suggestion of suitable reviewers
  - DOIs for the version of record
  - Indexing capabilities for CrossRef, Google Scholar, Dimensions, Scopus, Web of Science
  - Run on your own hardware or choose hosted solution
- Optional participation in DeSci Labs incentive layer

Design principles – DeSci incentive layer

- Goal: Create a market mechanism that incentivizes high-quality validation and curation services for scientific content
  - An alternative to paywalls and APCs
  - Solve the free-riding problem of peer-review
    - No rewards → Hard to find referees (long waiting times, low quality)
- Resistance to strategic behavior/abuse
- Plurality of value/quality definitions should be possible
  - Open playground for mechanism design
- Opt-in

Enabling a token economy for peer review

- Codified reciprocity
  - Get tokens for performing fast, high-quality peer review
  - Give tokens for requesting peer review
  - No money needed
- New participants receive a small token endowment the first time they do something valuable
  - Equal starting conditions for everyone
- Journals & communities define prices for the attestations they require
- Markets enable specialization

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Future of Science Seminar & Podcast

https://descifoundation.org/seminar

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