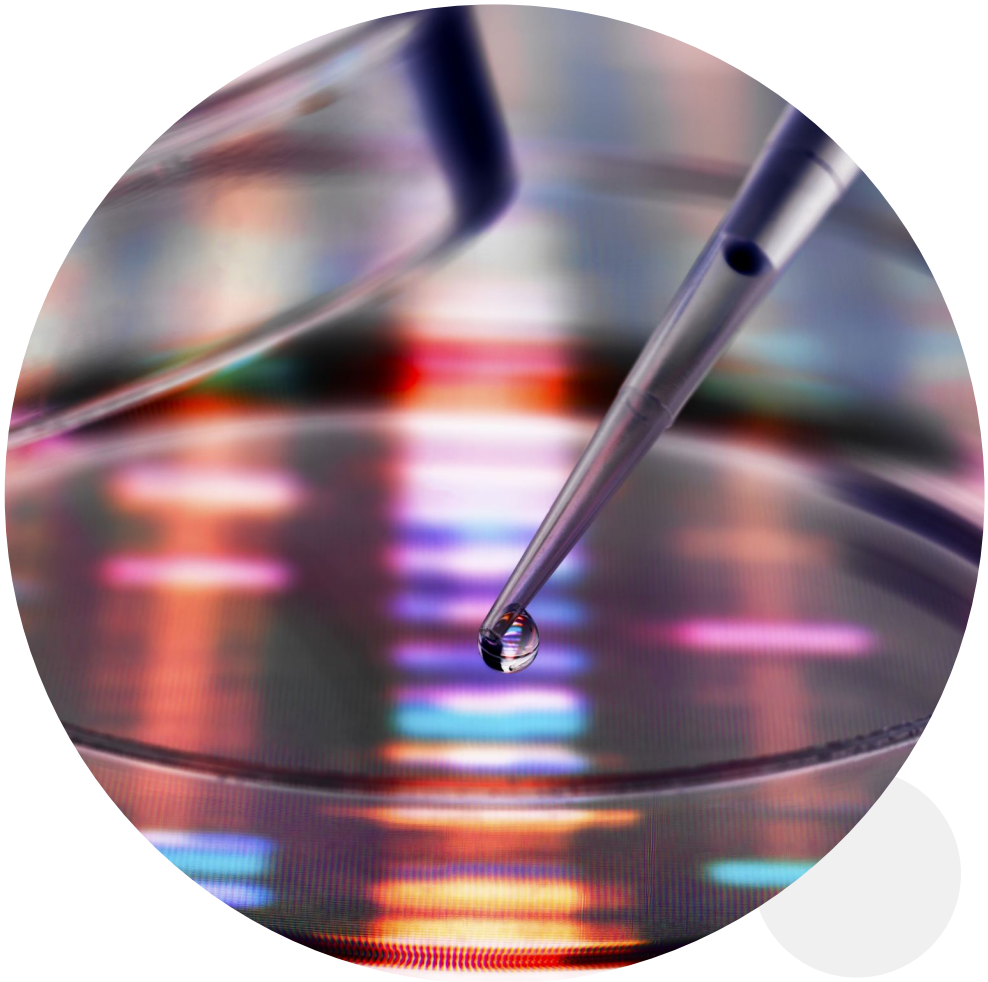
Scaling research management



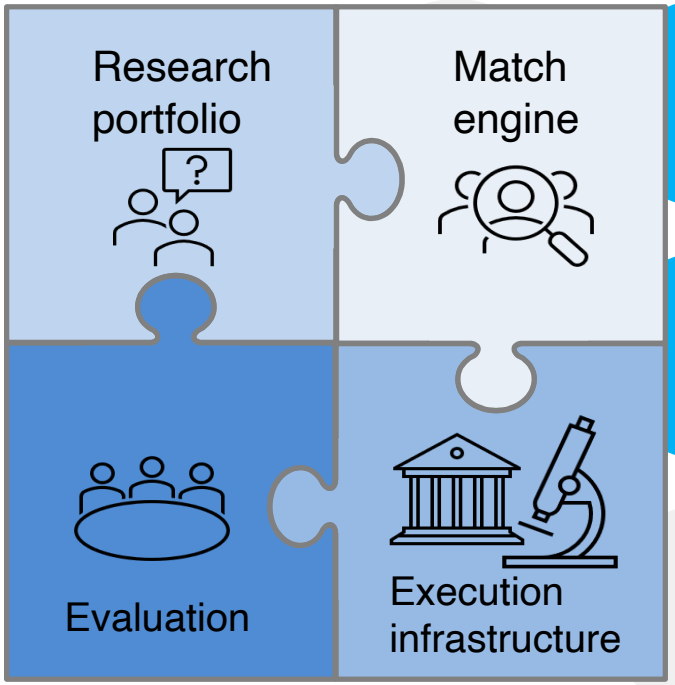
Open science funding schemes & social graphs

Background

The OSF fosters and develops open science as an open, collaborative science system to the benefit of all.

Through focused programmes (biophotonics, “twin hub”) OSF tests how to align *questions, talent, tools, and incentives.*

These projects will be used as testbeds for a scalable research management framework for organising open science.



Traditional approach

Matchmaking: conferences

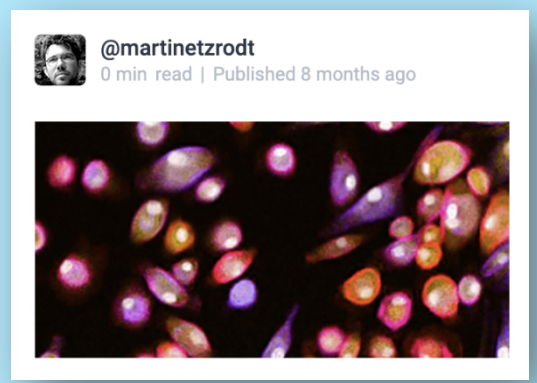
Not meritless, but expensive & exclusive

Execution Infrastructure

Expensive machines, → big effort, ***slow funding***

Open science approach

Matchmaking: online



Inexpensive & inclusive

Execution Infrastructure

Open, affordable hardware → smaller, ***agile funding***

Use bluesky for matchmaking and fund allocation

The Vibes Are Off: Did Elon Musk Push Academics Off Twitter?

Published online by Cambridge University Press: **15 October 2024**

James Bisbee and Kevin Munger Show author details

Bluesky is a decentralized Twitter-like network on the open AT Protocol, run by Bluesky Social PBC (led by Jay Graber, incubated with Jack Dorsey), aiming for portable/ interoperable social graphs with an open-source API.

It has 40 million users, and an estimated 40k scientists in 2024.

JOURNAL ARTICLE

Scientists no Longer Find Twitter Professionally Useful, and have Switched to Bluesky Get access

D S Shiffman ✉, J Wester

Integrative and Comparative Biology, Volume 65, Issue 3, September 2025, Pages 538–545, https://doi.org/10.1093/icb/icaf127

Published: 10 July 2025 **Article history**

```
Easy API:
import requests
APP="https://public.api.bsky.app/xrpc";
h="beniroquai.bsky.social"

fo = requests.get(f"{APP}/app.bsky.graph.getFollows",
params={"actor":h}).json()["follows"]
```

The alternative case: open hardware

Benedict Diederich
@beniroquai.bsky.social

We can do that!

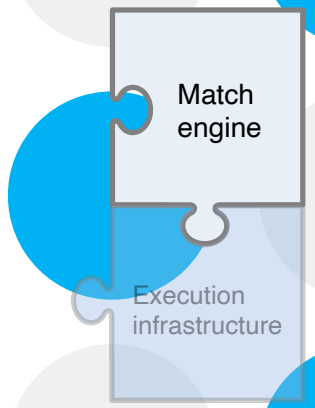
Jonas Ries
@jonasries.bsky.social

Gotthold Fläschner
@gflaesch.bsky.social

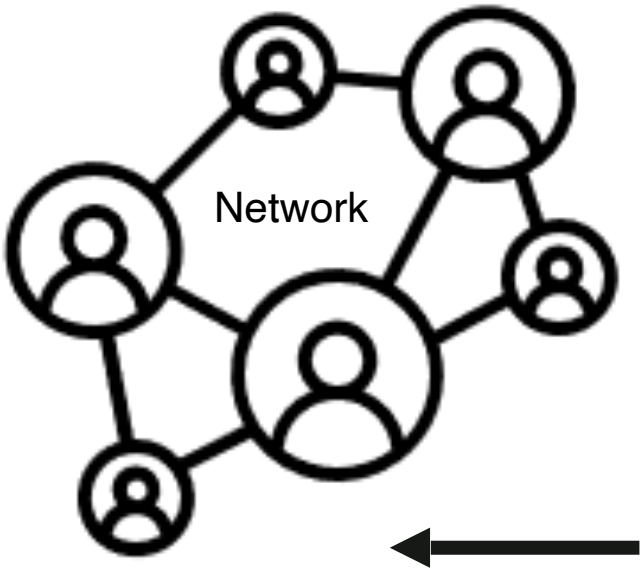
Who builds open source microscopes @Superlabs for 20kCHF

Martin Etzrodt II
Open Science Foundation

B. Diederich (potential supplier of open hardware for OSF) was found by Martin by manual search, despite being in the nearest bluesky network of Gotthold. An alternative scenario might have looked like this:



Proving ground: biophotonics research

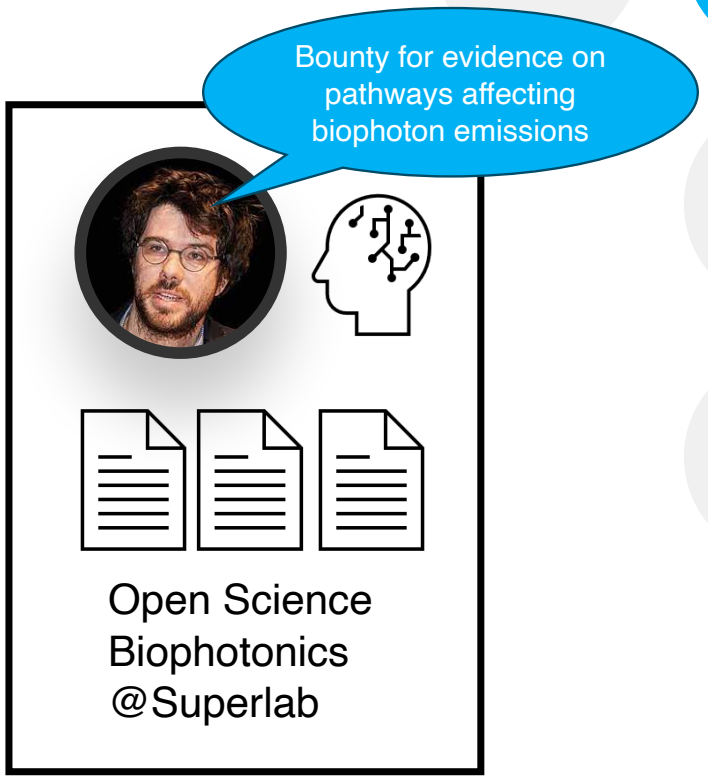


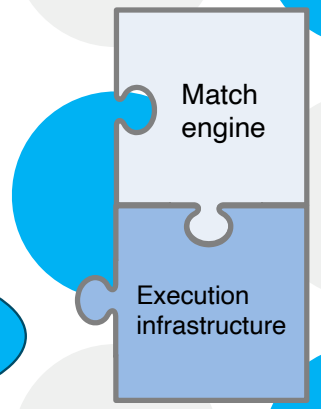
contribute

Provides:

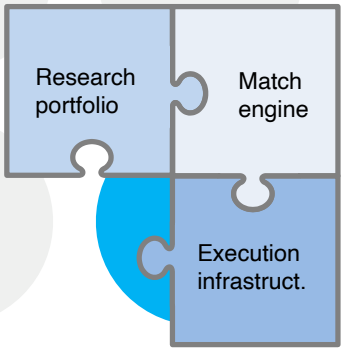
- Challenges
- Rolling Grants
- Hardware
- Hackathons
- Research stays

...





Proving ground: biophotonics research



contribute

- Challenges
- Rolling Grants
- Hardware
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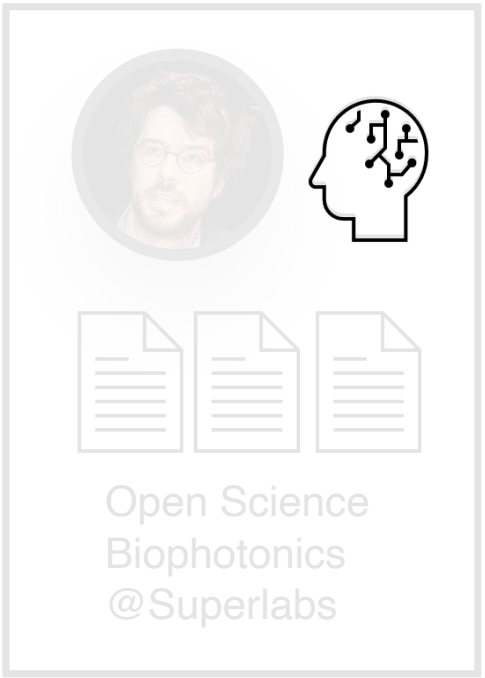
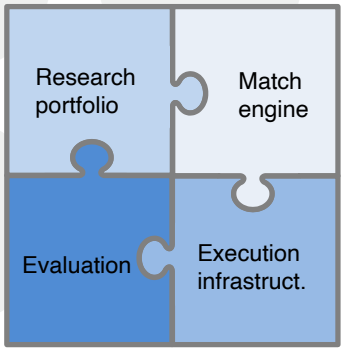


Large Language Model

I: Summarizes evidence
II: Identifies missing evidence
III: Maps network architecture

Makes suggestions for questions and collaboration enabled by LLM capabilities & social graph

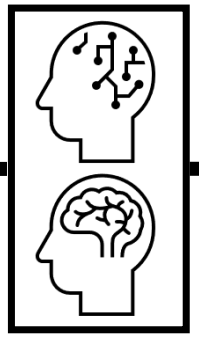
1. Phase, the ‘push’: Ask, Mobilize, Fund.



Network

Reactive

Open Science foundation



Active

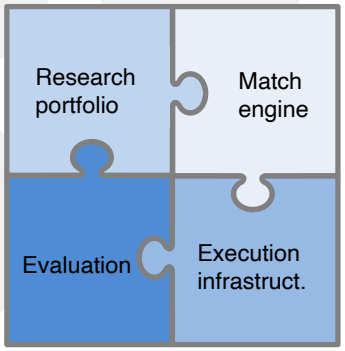
Tasks +
funding, space, hardware

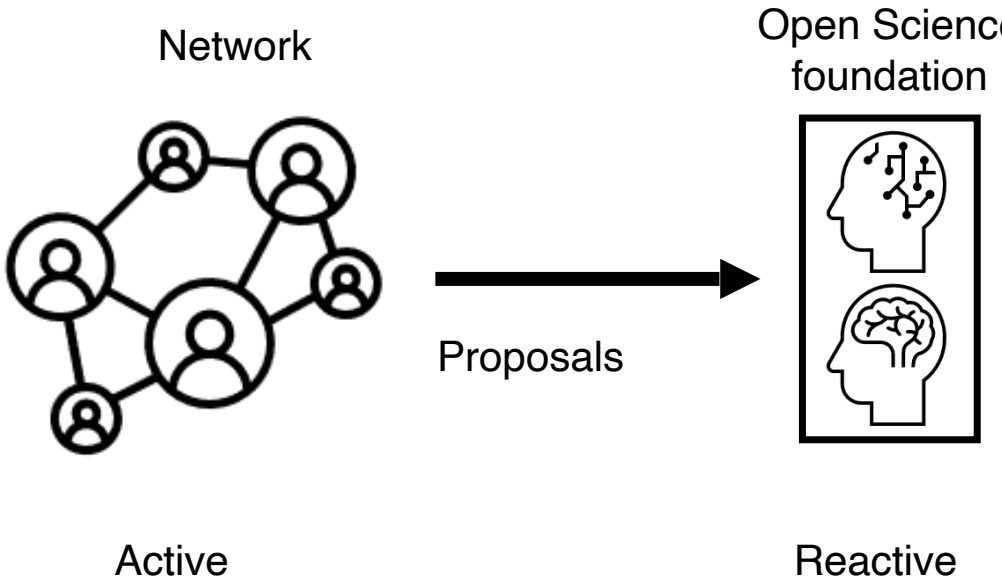
Phase 1: tasks are designed that include network response (‘shall we do **a** or **b**?’), and allow for developing ***evaluation metrics*** for decisions and outcomes.

Develop ***evaluation metrics***

- Network interaction response
- Network voting
- AI assessment
- ...

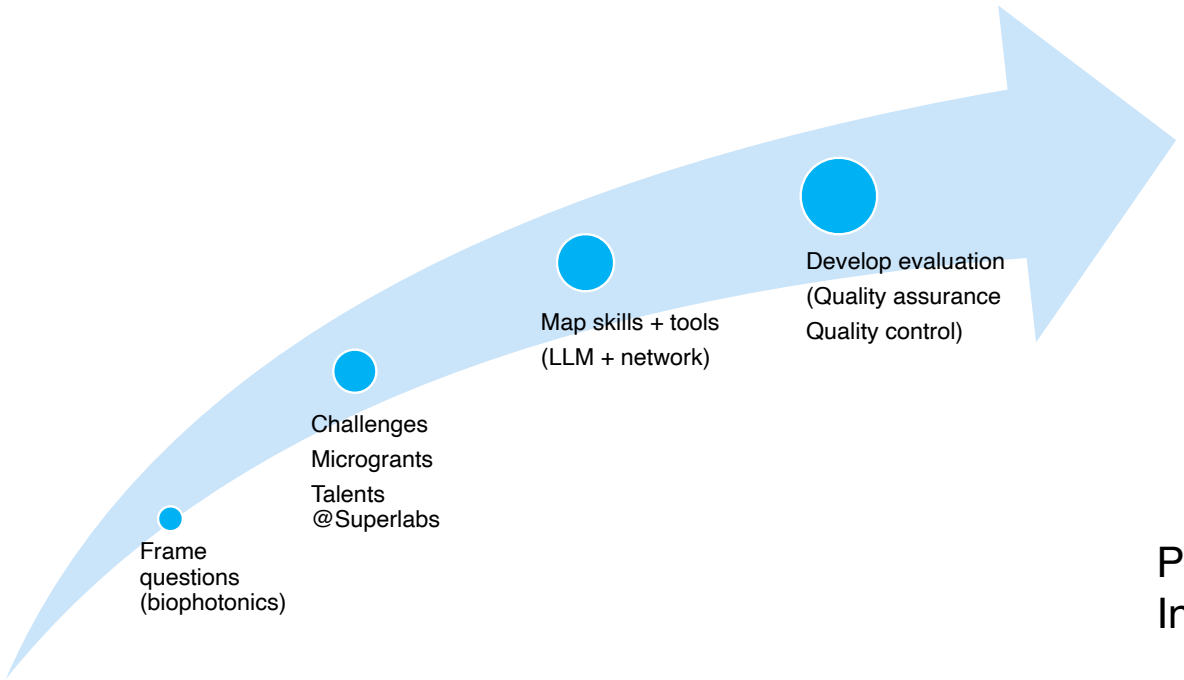
2. Phase, the ‘pull’: Listen, Rank, Fund.

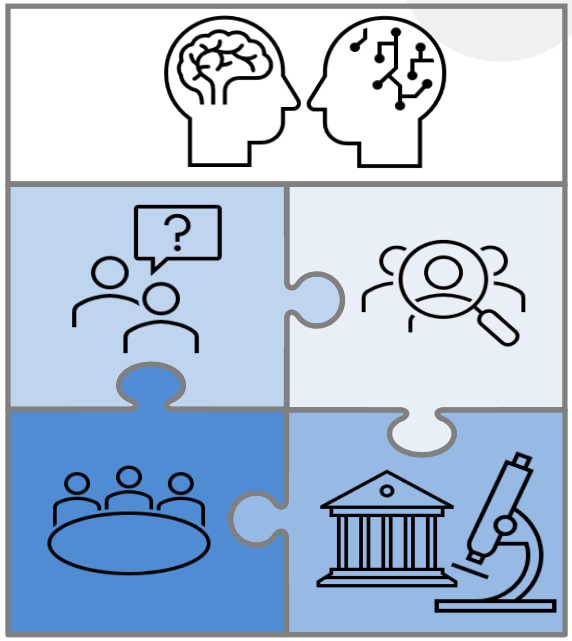




Phase 2, uses the ***evaluation metrics*** to allow being reactive to proposals from the network.

Scalable Science Management





Powered by social graphs + LLMs
Inclusive & open

Fast, efficient evidences & allocation

Next steps + Outlook

- Specify:
  - Research challenges and funding amounts
  - LLM methodology (Claude API etc)
  - Social graph architecture (→ possibly involve Jay Graber)
- Understand synergies with existing Akasha social graph architecture
- Write short summarizing proposal.