METASCIENCE 2023 CONFERENCE

Common Sense[makers]

האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

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Making sense of science: open access science needs open access to scientific sensemaking data

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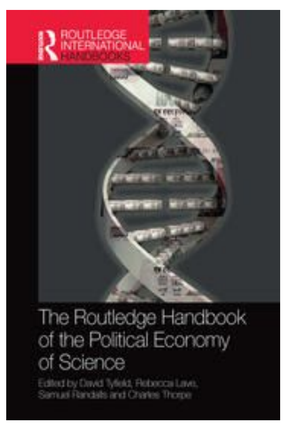


Open Access Panacea (Muellerleile, 2017)

*"Open access to knowledge may be better than an environment where much academic knowledge is closed, but focusing too closely on the openness may be distracting us from the ways that capital is sneaking in the back door and enclosing the **very tools we need to make sense** of this new world"*

"academic publishers are losing control of content, but at the same time enclosing information about content and those who produce it"

What are those "tools we need to make sense of this new world"?

Sensemaking tools

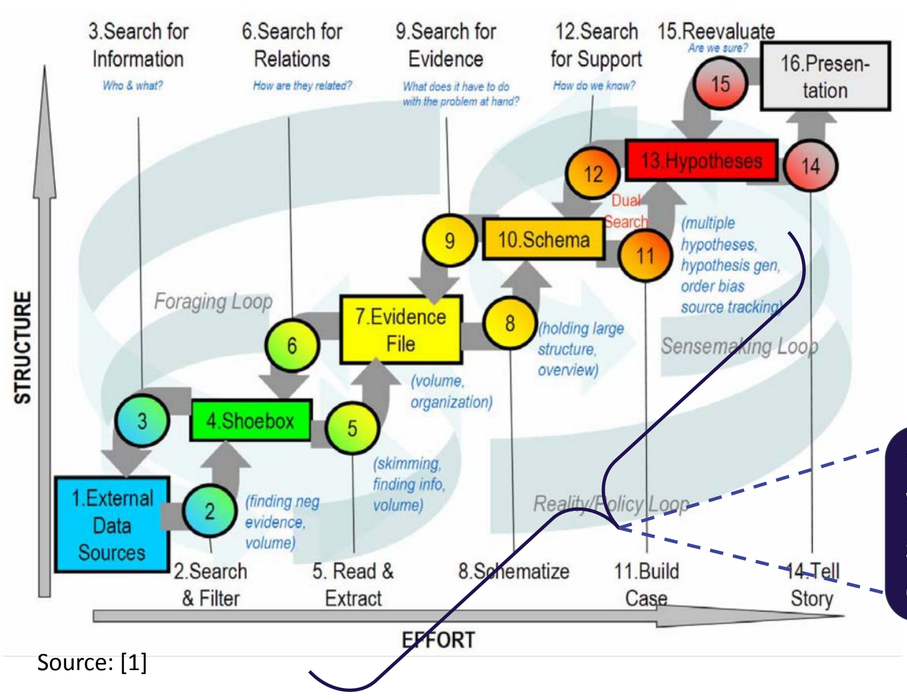
Tools for annotation, knowledge management, collaboration/social platforms

Sensemaking data

Digital traces of sensemaking processes: explicit (annotations, bookmarks, etc) and implicit (view counts, other app usage data)

Sensemaking processes

Processes by which individuals and groups structure & organize new information to improve decision-making



Source: [1]

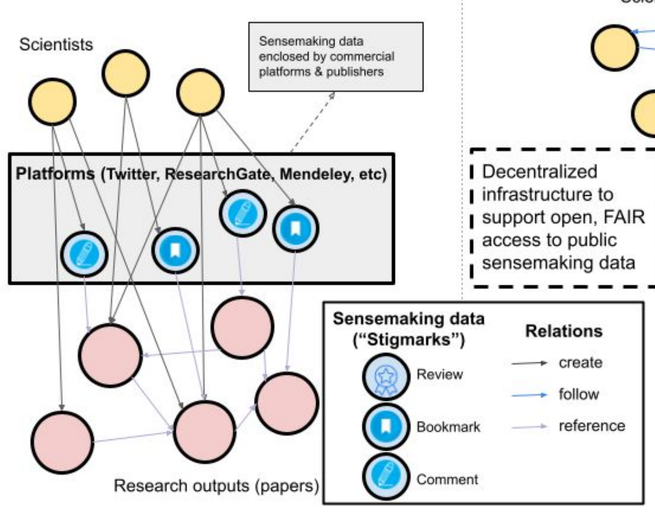
"Creative exhaust": Where are these sensemaking data being captured (if at all)?

Sensemaking Infrastructure

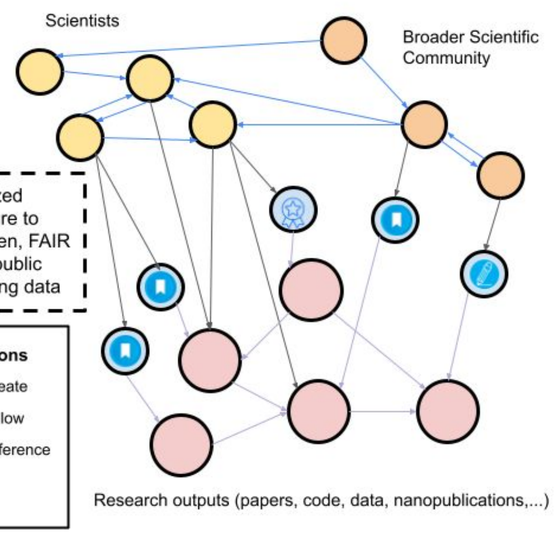
- Navigating information overload
- Open Evaluation
- Altmetrics
- Supporting large scale collaboration ("big science")

Upstream from key meta-scientific challenges

Current: Platformized scholarly sensemaking infrastructures



Proposed: Open Science Sensemaking infrastructure



Open, FAIR & Stigmergic sensemaking data

Given the importance of public sensemaking data for open science, we contend that they too merit treatment as scientific research outputs:

1. Open — Infrastructure should support open access to data

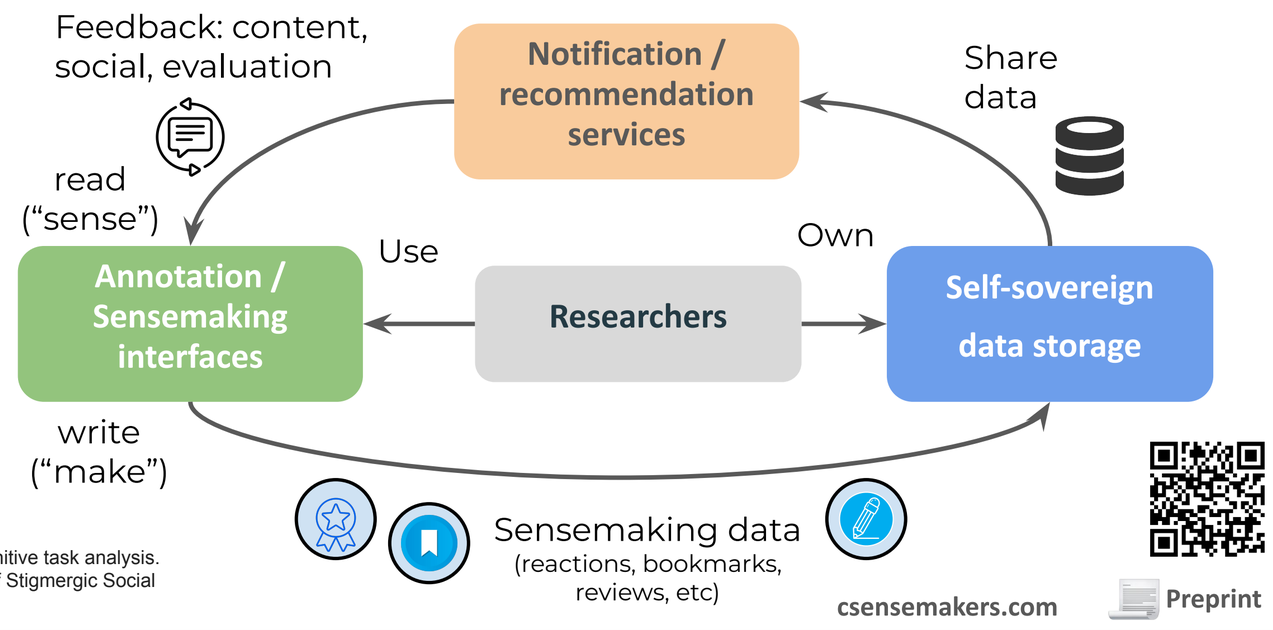
2. FAIR — Data should be Findable, Accessible, Interoperable, Re-useable

3. Stigmergic — Data should be embedded in (AI-augmented) collective intelligence networks incorporating feedback loops of content marking and discovery

Stigmergy: mechanisms of indirect communication between agents mediated by environment modifications (ant pheromone trails)

Open Science Sensemaking network: protocol-driven, decentralized, stigmergic annotation network (based on [2])

- Open protocols: promote interoperability, evolving ecosystem
- Decentralized data: resilience to platformization
- Stigmergic annotations drive social and epistemic feedback loops
- Semantic annotation: structured, machine-readable knowledge representations (not just text)
- Social trust networks improve resilience to mis/dis-information



csensemakers.com

Preprint

[1]: Pirolli, P., & Card, S. (2005). The sensemaking process and leverage points for analyst technology as identified through cognitive task analysis.
[2]: Tamari, R., Friedman, D., Fischer, W., Hebert, L., & Shahaf, D. (2022). From Users to (Sense)Makers: On the Pivotal Role of Stigmergic Social Annotation in the Quest for Collective Sensemaking.