

Generative AI (genAI) in Knowledge-Work from a Text-Workers' Perspective

Why so serious?

Gondolf, Janine & Ackerl, Clemens et al.

@DiTraReColloquium, online, 01.10.2026

itas Institute for Technology Assessment and Systems Analysis

Agenda

1. How exactly is genAI CHALLENGING the processes of scientific knowledge-work?
2. How is it CHANGING the processing and assessment of evidence-based knowledge?
3. Insights from "Technology Assessment (TA) with Undermind.ai"
4. Conceptualization: division of epistemic labour in genAI-assisted text-work
5. Implications for scientific responsibilities, integrity, and accountability
6. Research participants and literature

Forschung & Lehre
ALLES WAS DIE WISSENSCHAFT BEWEGT

FORSCHUNGSPRAXIS

Betreiben KI-Modelle selbst Wissenschaft?

Künstliche Intelligenz (KI) ist in der Wissenschaft längst nicht mehr bloßes Hilfsmittel. Sie organisiert inzwischen Forschungsprozesse eigenständig.

Von **Christine Vallbracht** / 20.05.2026

unesco
Deutsche
UNESCO-Kommission



Startseite | Künstliche Intelligenz | **KI & Wissenschaft**

KI & Wissenschaft

Der Einsatz von Künstlicher Intelligenz in Wissenschaft und Forschung

Startseite » IT/Tech » Der Umgang der Wissenschaft mit KI-Tools ist verantwortungslos

Kommentar
13.04.2026
Lesedauer ca. 6 Minuten
Drucken
Teilen

MEHR PAPER, SINKENDE QUALITÄT

Spektrum.de

Der Umgang der Wissenschaft mit KI-Tools ist verantwortungslos

Generative KI wirkt kompetent und neutral. Sie unterstützt beim Peer-Review-Prozess und steigert die Produktivität. Doch ihr Einsatz höhlt zentrale Prinzipien der Wissenschaft aus, schreibt Jens Foell in einem Gastkommentar.

von Jens Foell

KRÄFTE BÜNDELN

Zukunft europäischer Wissenschaft: "Zusammen sind wir besser als KI"

Verlässliche Förderungen garantieren wissenschaftliche Exzellenz. Daneben verschaffen besonders Kooperationen zwischen Forschenden einen bedeutenden Vorsprung

Isabell Rosenkranz
19. September 2026, 18:00

DERSTANDARD

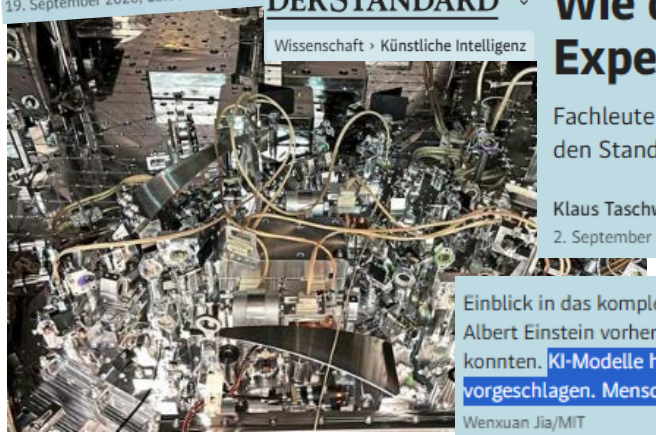
Wissenschaft › Künstliche Intelligenz

PHYSIK-ZAUBERLEHRLING

Wie die KI beim Erfinden von Experimenten den Menschen übertrifft

Fachleute vor allem aus Österreich geben im Fachblatt "Nature" einen Überblick über den Stand innovativer KI-Anwendungen in der physikalischen Forschung

Klaus Taschwer
2. September 2026, 17:00



Einblick in das komplexe Herzstück des Gravitationswellendetektors LIGO, mit dem die von Albert Einstein vorhergesagten Phänomene fast ein Jahrhundert später detektiert werden konnten. KI-Modelle haben mittlerweile bessere LIGO-Experimentieranordnungen vorgeschlagen. Menschliche Fachleute taten sich aber schwer, diese zu verstehen.
Wenxuan Jia/MIT

DIE ZEIT

Z+ KI in der Wissenschaft

Wenn die KI so tut, als sei sie Einstein

Künstliche Intelligenz forscht, schreibt, begutachtet Paper und sorgt für Durchbrüche. Ist der menschliche Forscher bald überflüssig?

Von Rudi Novotny

The concept of a "fourfold deception" (J. Simon, 2026)

- … regarding the ontological status of the interaction partner (human/AI)
- … regarding the capabilities or performance of the AI
- … arising from or through AI-generated content
- … regarding the functionality of AI (e.g., through "function creep")

Consequence: Threat to established "practices of trust & of assessing trustworthiness"

What are the implications for science – especially in light of the crisis of trust in science and its institutions?

Core question: How exactly does AI change the processes of scientific knowledge production & knowledge processing?

Dimension 1 – Knowledge & scientific quality

- AI-based research: **problematic knowledge base** – including existing gaps & biases
- Prompts, source base and tool logic shape what becomes visible **– and what does not**
- **Disclosure** of use, scientific **standards** ≠ automatically scientific quality

Dimension 2 – Competencies & scientific practice(s)

- New **possibilities** vs. external pressures and **expectations** of speed and usability
- Specialized tools, narrowing to specific sources – **new gaps in sources and knowledge?**
- From AI/data/digital **literacy** to scientific **judgment competence**: understanding, verifying, contextualizing, ...

Core question: How exactly does AI change the processes of scientific knowledge production & knowledge processing?

Dimens

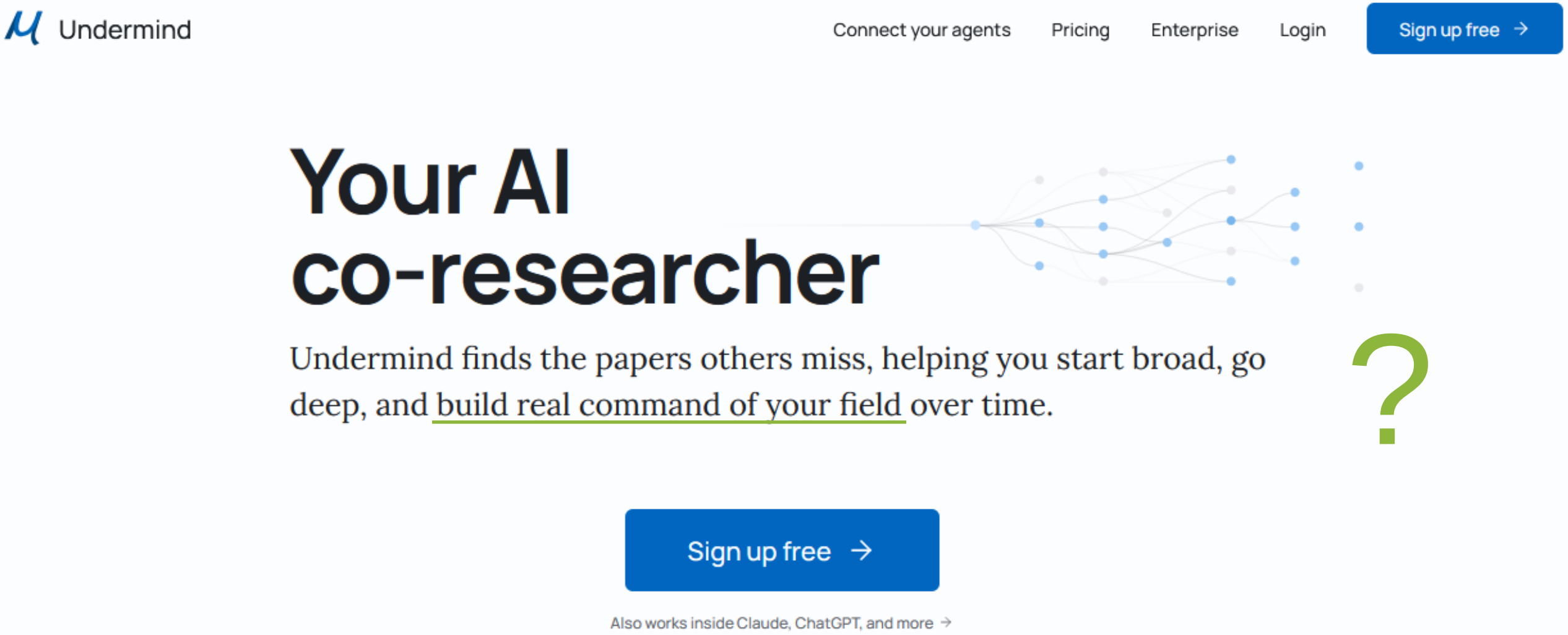
- AI-bas
- Promp
- **Disclo**

Dimens

- New p
- Specia
- From AI/data/digital **literacy** to scientific **judgment competence**: understanding, verifying, contextualizing, ...

"Was AI used?"… increasingly the norm rather than an **exception requiring disclosure*...**

Key questions therefore:
"How has the usage of AI influenced knowledge, quality and judgment **in the process**?",
respectively "How are **authority**, **traceability** and **public trust** established under conditions of AI-supported knowledge production?"



Technology Assessment (TA) with Undermind.ai

The project-design

Scope

- Literature review (max. 45.000 characters)
- Policy brief (max. 5 slides)
- Processing time: max. 8 hours

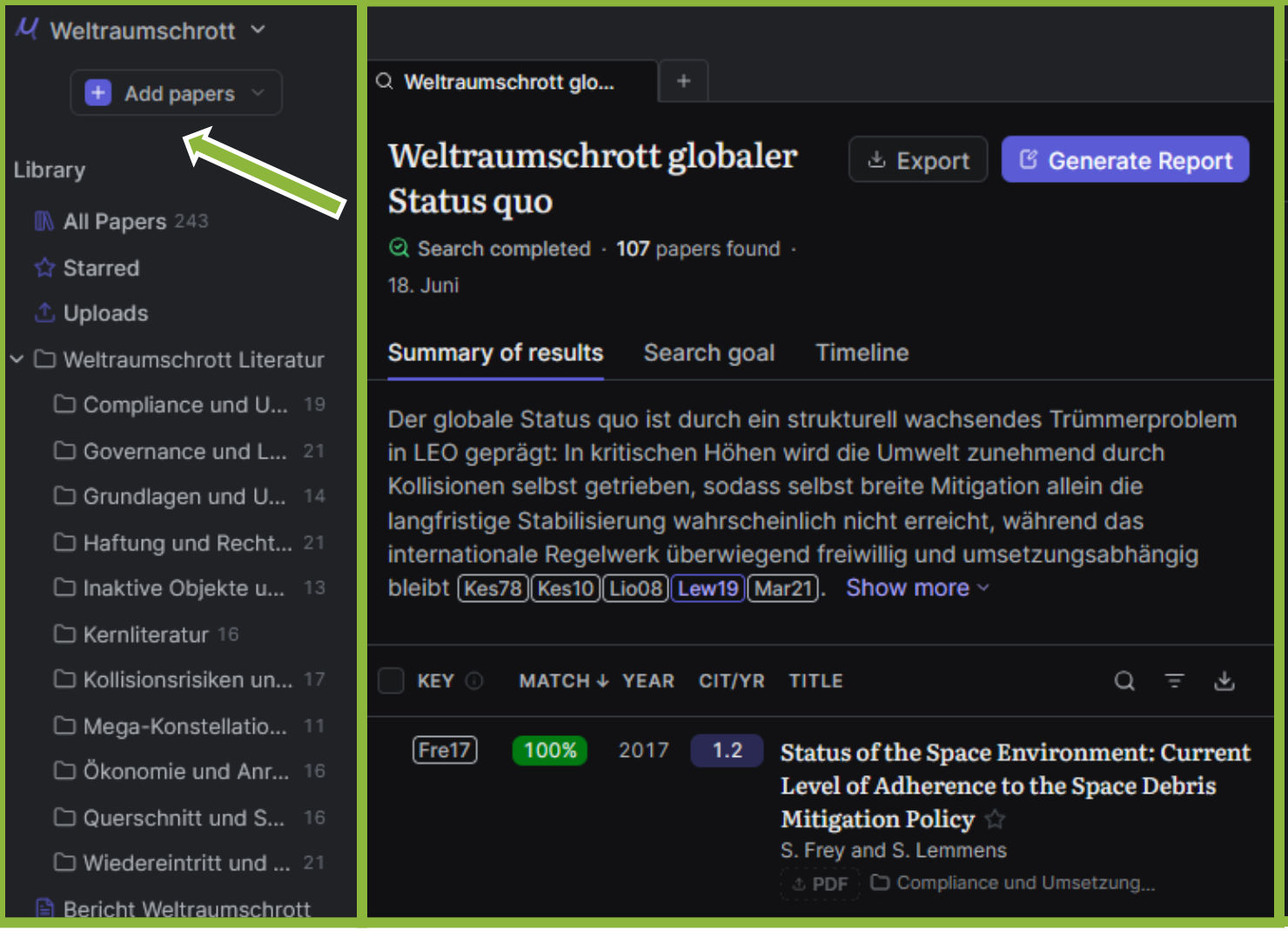
Procedure

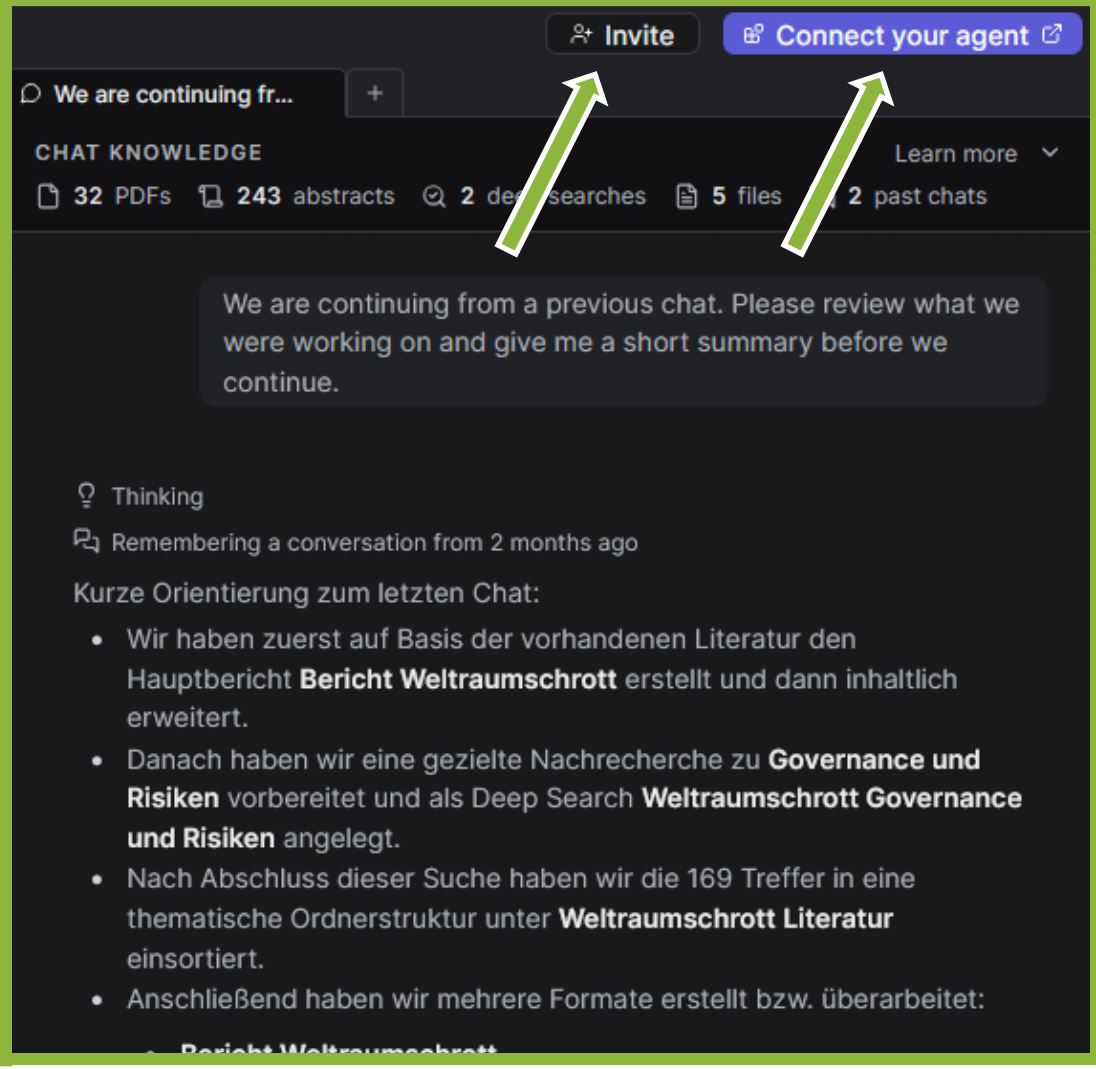
1. User enters a topic prompt (chat)
2. Interactive generation of a search string
3. Automated literature search (deep search)
4. Guided creation of a literature review
5. Step-by-step generation of report sections and text formats
6. Option to adapt to journal requirements, including slides, cover letter…



Experimental setup

- **4 topics x ITAS-colleagues** with different thematic interests, different knowledge-work skills and AI-related expertise
- **Documentation of AI interaction from the user's perspective**, as well as disclosure of other contributions made (e.g. procedural adjustments, specific thematic additions, manual provision of literature)





Your AI co-researcher

The classification system

The report generating area

The chat area and additional integration options

Ai-assisted scientometrics - Citation networks x internal ranking



PRISMA

PRISMA 2020 PRISMA extensions PRISMA-Check Translations Endorsement

Welcome to the PRISMA website ?

PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses) is a guideline designed to improve the reporting of

Ai-assisted scientometrics - Citation networks x internal ranking

"**The r score** describes the match with the respective search query; higher values indicate greater relative relevance.
The exact method for calculating the score **has not been publicly documented**."

(Undermind.ai)

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Scientometrics: How does the AI assistant access the academic text (and which part of it)?

Access to abstracts and metadata (open science)

Crossref: DOI metadata, bibliographic details and, for many publishers, abstracts via an official API

OpenAlex: open research graph containing metadata, citation relationships and abstracts

Semantic Scholar: metadata, abstracts, - free, AI-driven search and discovery tools, and open resources for the global research community.

PubMed, **DataCite…**

Access to full texts (open access)

Open-Access-Repositorien arXiv, Zenodo, HAL, SSRN, OSF, institutional repositories

OpenAlex & Semantic Scholar refer to numerous freely available PDFs and open-access versions.

researchgate, Unpaywall

What is happening in the world of academic publishing?

Official APIs – No scraping or similar is required

Institutional license agreements – AI-assistants uses content that the user can legally access

BUT what if a text is not available online but is cited in the corpus?

Undermind.ai does not ‘know’ any books or standard works specific to the field. It ‘asks’ for full texts where these texts are not accessible but appear to be ‘relevant’ via citation networks

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& make it available to the user!

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Ai-assisted scientometrics - Citation networks x internal ranking

"**The r score** describes the match with the respective search query; higher values indicate greater relative relevance.
The exact method for calculating the score **has not been publicly documented**."

"Where PDFs were available, **key statements were also checked against the full text**. For papers without a PDF, I relied on abstracts and metadata."
(Undermind.ai)

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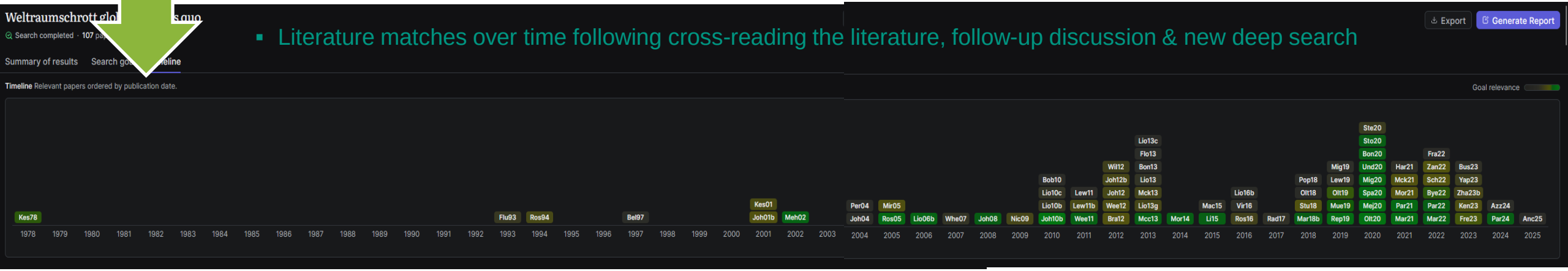
Ai-assisted ~~scientometrics~~ - Citation networks x internal ranking

text-work



- Literature matches over time following an initial deep search

Reading

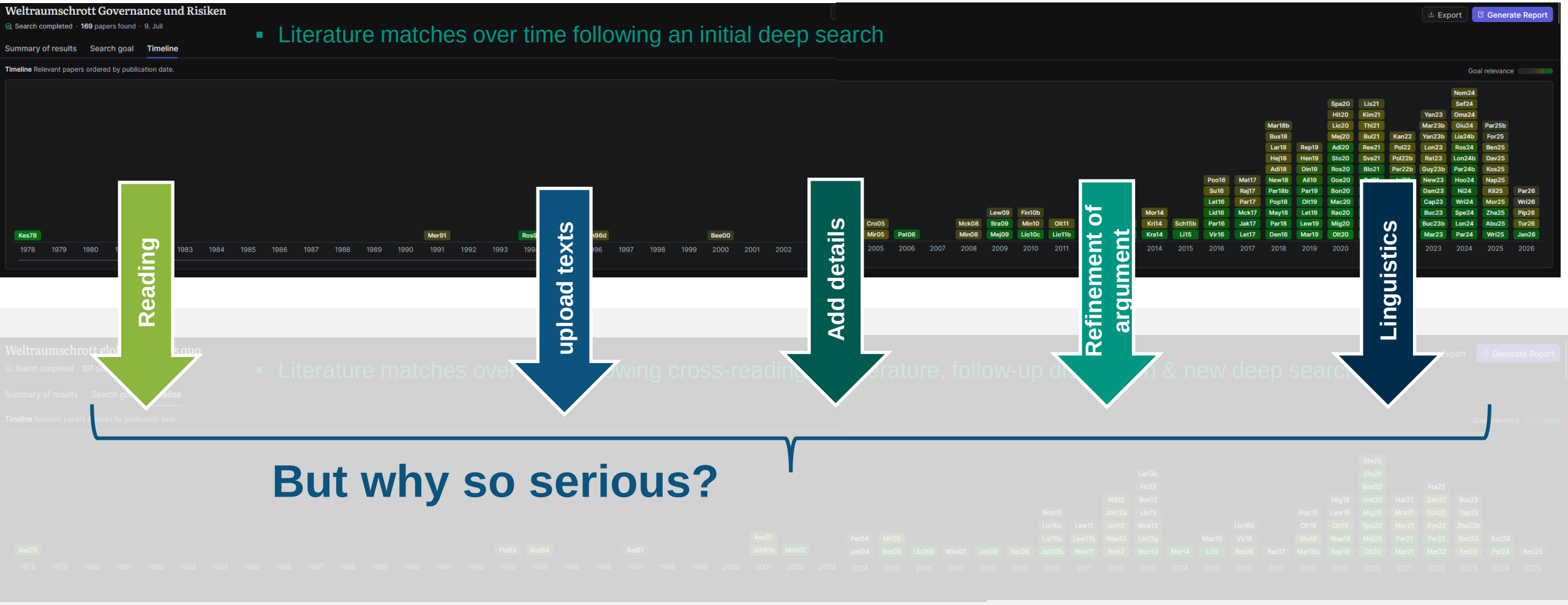


- Literature matches over time following cross-reading the literature, follow-up discussion & new deep search

Ai-assisted ~~scientometrics~~ - Citation networks x internal ranking

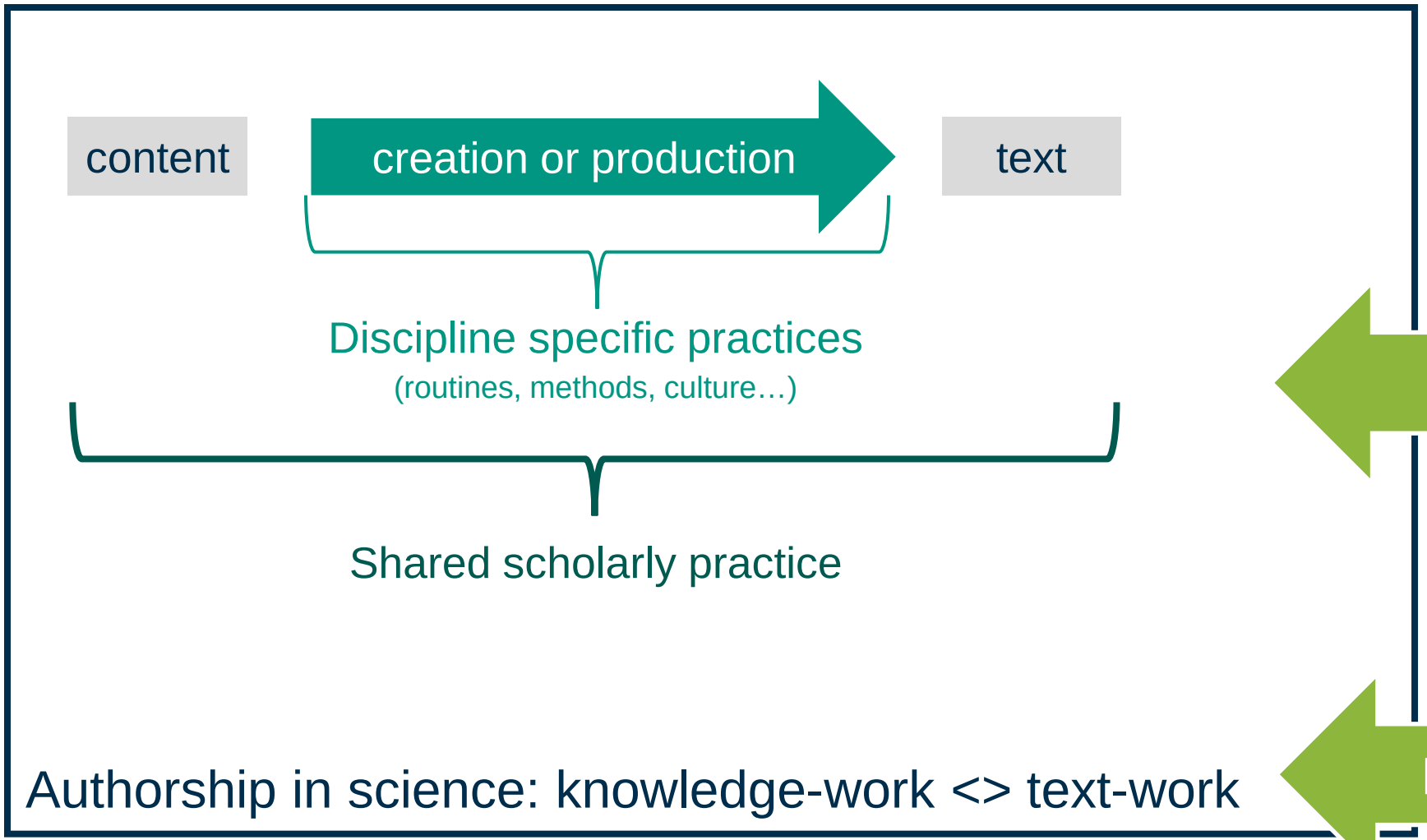
~~text-work~~

knowledge-work



Attribution and recognition of authorship

With genAI?



Old(er) challenge

New(er) challenge

Old(er) challenge: Diciplinary practices
The case of distributed/fragmented and hyper-authorship

PRL 114, 191803 (2015) Selected for a Viewpoint in *Physics*
PHYSICAL REVIEW LETTERS
week ending 15 MAY 2015

Combined Measurement of the Higgs Boson Mass in *pp* Collisions at $\sqrt{s} = 7$ and 8 TeV with the ATLAS and CMS Experiments

G. Aad *et al.*[*]

(ATLAS Collaboration)[†]
(CMS Collaboration)[‡]

(Received 25 March 2015; published 14 May 2015)

A measurement of the Higgs boson mass is presented based on the combined data samples of the ATLAS and CMS experiments at the CERN LHC in the $H \to \gamma\gamma$ and $H \to ZZ \to 4\ell$ decay channels. The results are obtained from a simultaneous fit to the reconstructed invariant mass peaks in the two channels and for the two experiments. The measured masses from the individual channels and the two experiments are found to be consistent among themselves. The combined measured mass of the Higgs boson is $m_H = 125.09 \pm 0.21\,(\text{stat}) \pm 0.11\,(\text{syst})$ GeV.

DOI: 10.1103/PhysRevLett.114.191803

33 pages Paper

(of which are 24 pages of authors names and affiliations)

5154 authors

x

9 pages text

authorship = responsibility, authorization, authority with regards to text and its content

Our editorial policies (A-Z)

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We believe that artificial intelligence (AI) can support research and publishing when used responsibly, transparently, and with appropriate human oversight. AI can improve efficiency and assist with a range of activities across the research and publishing lifecycle, but it must not replace scholarly judgement, accountability, or editorial decision-making.

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"Our editorial policies are guided by **four core expectations:**

1. human accountability cannot be transferred to AI systems;
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3. transparency about AI use builds trust and confidence; and
4. confidentiality and data protection must be maintained when using AI tools."

https://www.springernature.com/gp/policies/editorial-policies

New(er) challenge: Division of epistemic labour … from sole author to curator?

Researchers use LLMs for information seeking, summarization, editing, ideation, and literature exploration, while remaining **more cautious in applications regarding data processing** (Andersen et al., 2025; Liao et al., 2024)

Discovery, ideation	Reading & synthesis	Interpretation	Writing	Decision
Human role	*Human role*	*Human role*	*Human role*	*Human role*
Relevance judge	**Verifier**	**Context keeper**	**Accountable author**	**Owner of judgment**
Role of genAI?	*Role of genAI?*	*Role of genAI?*	*Role of genAI?*	*Role of genAI?*

Variations in **attitudes** towards and **access** to **using genAI** for research are discussed as potentially **producing (new forms of) inequalities in science...**

Necessity of "institutionally grounded democratic **deliberations** at different institutional settings" (Jeon et al., 2025)

Research participants „TA with Undermind.ai“

Speakers

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Project team @ITAS

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Dirk Hommrich, Camille Landesvatter, Johanna Mehler, Linda Nierling,

Maike Puhe, Ashley Razo, Jens Schippl, Paul Leonard Witte

Literature

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