

On the way to responsible practices – analysis of guidelines on generative AI from scientific publishers

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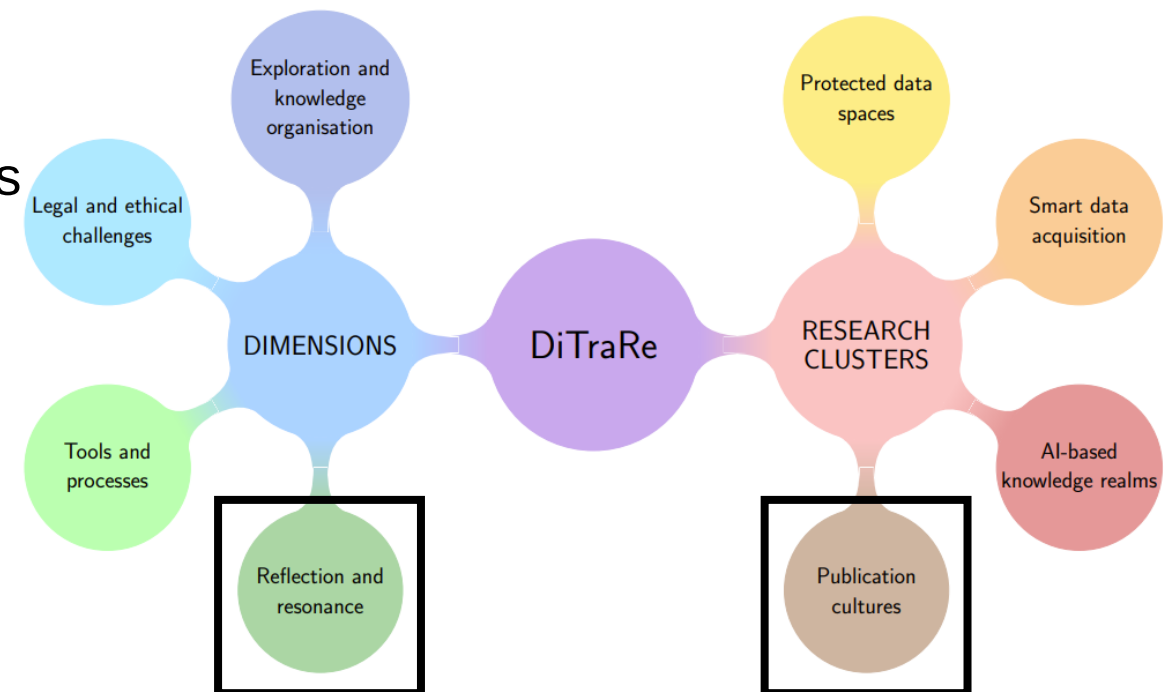


Agenda

1. Project DiTraRe
2. GenAI in scientific publishing
3. Own analysis of guidelines on genAI from scientific publishers
4. Conclusion

1. Digital Transformation of Research (DiTraRe)

- Leibniz ScienceCampus "Digital Transformation of Research" is a joint project of FIZ Karlsruhe and the Karlsruhe Institute of Technology, funded by the Leibniz Association (2023-2027) (<https://www.ditrare.de/en>)
- Investigating the effects and potential of the increasing digitalization of scientific work in four interdisciplinary research clusters
- Includes the theoretical-conceptual level, methodological issues as well as consequences for science and society
- Focus: Reflection & Resonance, Publication Cultures



2. GenAI in scientific publishing

Generative AI as a "game changer" with its ability to generate novel content

- New chances for knowledge generation and processing
 - Increased efficiency and productivity in scientific working practices
 - LLM-based knowledge extraction
- But reflections on different level needed
 - Technical limits: Detection, authentication, "hallucinations"
 - Social aspects: AI-literacy, potential loss of competences
 - Legal issues: Data protection, limits of regulation
 - Ethical guidelines: Overreliance, false information, biased knowledge
- Publication cultures & AI – ensuring research integrity
 - Knowledge generation: How to deal with challenged concepts of reliability in genAI policies in academic publishing?
 - Human-AI hybrid: Which steps in the research process require human verification?
 - Options for action: Development of common standards or guidelines are possible?

2. GenAI in scientific publishing

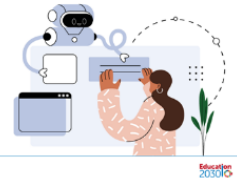
- Enhance the efficiency: creating, revising, translating and processing publications
- Necessities
 - Quality assurance & integrity in scientific publishing
 - Ensure scientific standards: no plagiarism or false information
 - Transparency and traceability
 - Labelling obligation for the use of genAI
 - Clear guidelines for traceability & against misuse
- Open Questions
 - Ethics & responsibility
 - Who has the responsibility – authors, publishers or AI developers?
 - Compliance with (ethical) principles?
 - Standardisation & comparability
 - Different scientific publishers with different AI guidelines → Inconsistencies in publishing practice?
 - Impacts on peer review & scientific processes
 - To what extent are AI-supported peer review processes permitted?

2. GenAI in scientific publishing

■ Important guidelines on the use of generative AI in scientific publishing

unesco

Guidance for generative AI
in education and research



"...the usage processes should ensure humans' interactive engagement with GenAI and higher-order thinking, as well as human accountability for decisions related to the accuracy of AI-generated content, and their impact on human behaviours"
p. 29



"Use generative AI transparently: Researchers, to be transparent, detail which generative AI tools have been used substantially in their research processes."



"The use of artificial intelligence (AI) tools such as ChatGPT or Large Language Models in research publications is expanding rapidly. (...) to state that AI tools cannot be listed as an author of a paper."



"Large Language Models (LLMs), such as ChatGPT, do not currently satisfy our authorship criteria"

UNESCO (2023): <https://www.unesco.org/en/articles/guidance-generative-ai-education-and-research>

EC (2024): https://research-and-innovation.ec.europa.eu/document/2b6cf7e5-36ac-41cb-aab5-0d32050143dc_en

Springer (2025): https://www.springer.com/gp/editorial-policies/artificial-intelligence--ai-/25428500?srsId=AfmBOopzRsbwsT9pkaJbJPXq-IWMhiA8NQI_Gp9swQ5mEadFkJefjQP1

COPE (2023): <https://publicationethics.org/guidance/cope-position/authorship-and-ai-tools>

2. GenAI in scientific publishing

- Aim: How are publishers dealing with the new conditions and challenges arising from the potential use of AI by their authors and in the peer review process?
- Motivation: The analysis helps to provide a structured overview of the current state of guidelines and regulations on generative AI in scientific publishing, identify gaps, and formulate recommendations for uniform and ethical standards.
- Research question: How do publishers handle the new framework conditions and challenges arising from the potential use of generative AI by their authors and in the peer review process?

2. GenAI in scientific publishing

- Only a small proportion of scientific publishers have guidelines concerning the use of genAI (Ganjavi et al. 2024 & Perkins & Roe 2024)
 - Ganjavi et al. 2024: Analysis of genAI guidelines of the 100 largest scientific publishers based on the number of journals (& 100 highest rated scientific journals)
 - 24 of the 100 largest scientific publishers with genAI guidelines, of the 24 publishers have referred 56 % to the COPE guideline
 - 2 similarities: no authorship of genAI & disclosure when using genAI
 - Perkins & Roe 2024: Analysis of genAI guidelines at 107 leading & large scientific publishers
 - 28 of 107 scientific publishers with genAI guidelines
 - 6 general topics of the genAI guidelines: 1. Human-Exclusive Authorship, 2. Author Accountability, 3. Disclosure & Transparency, 4. Research Integrity, 5. Fluid Policy Landscape, 6. Constraints & Exclusions

3. Own analysis of guidelines on genAI from scientific publishers

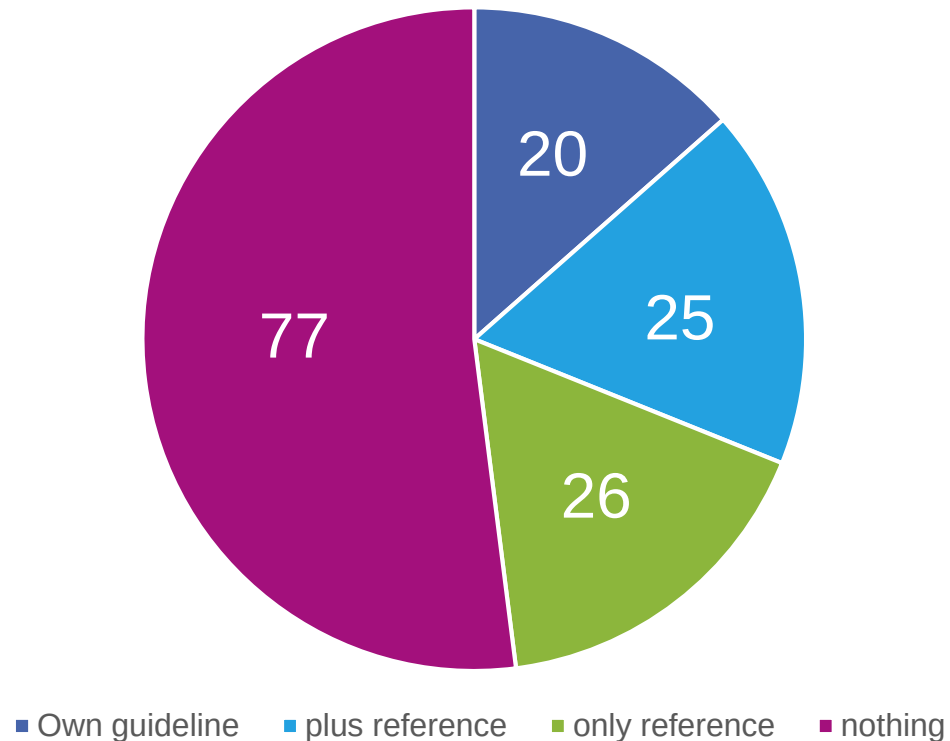
- Approach: expanded the selection of Ganjavi et al. (2024) to include publishers with guidelines that have been added since the conclusion of the study (end 2023), as well as German scientific publishers and universities publishing
 - Focus on scientific publishers with their own genAI-guidelines
 - Period of the analysis: August 2024 to March 2025
- Method: identification of central themes across selected guidelines

3. Own analysis of guidelines on genAI from scientific publishers

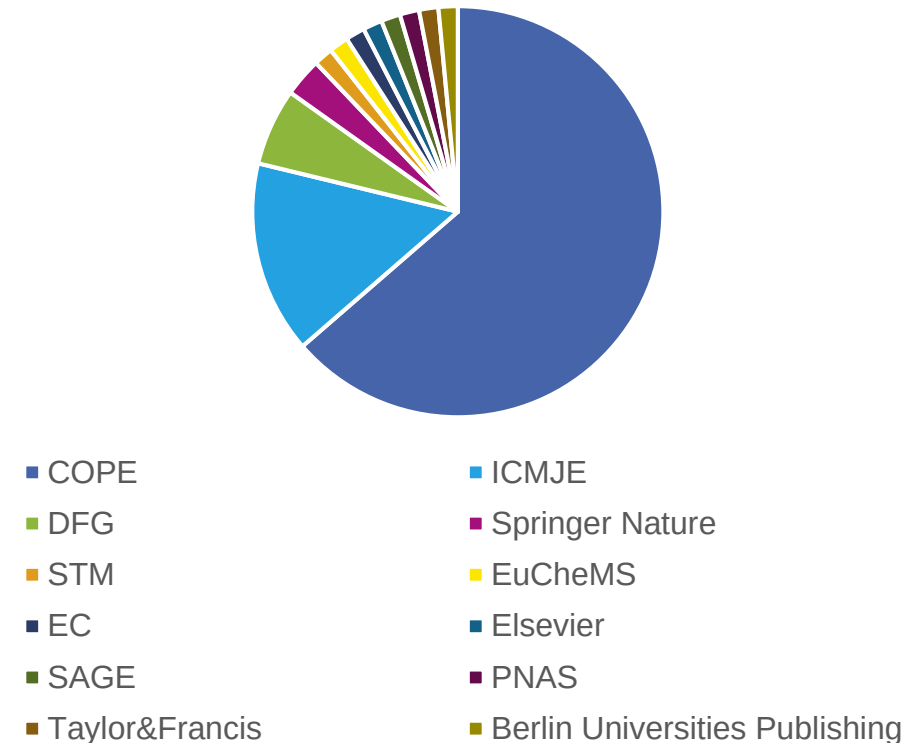
- Classification of scientific publishers into four categories:
 1. Scientific publishers with their own guidelines on genAI (e.g. Frontiers & Routledge) → 20
 2. Scientific publishers with their own guidelines on genAI & references to other publishers/guidelines (e.g. Science & Elsevier) → 26
 3. Scientific publishers without their own guidelines but with references to other publishers/guidelines (e.g. De Gruyter & Facultas) → 25
 4. Scientific publishers without their own guidelines and without references to other publishers/guidelines (e.g. JSTOR & Nomos) → 77
- Most referenced publishers and guidelines: COPE (42), ICMJE (10), WAME & DFG (4) (overall 51, 51 from 148 with references)

3. Own analysis of guidelines from scientific publishers

Classification of guidelines



Most referenced publishers & guidelines



3. Own analysis of guidelines on genAI from scientific publishers – own guidelines



"Please be aware that using AI-based tools and technologies for chapter/book content generation, e.g. large language models (LLMs), **generative AI**, and chatbots (e.g. ChatGPT), **is not in line with our authorship criteria**. All authors are **wholly responsible** for the originality, validity and integrity of the content of their submissions. Therefore, LLMs and other similar types of tools do not meet the criteria for authorship. Any **assistance from AI tools** for content generation and other similar types of technical tools which generate text content, **must be clearly acknowledged within the book**."

<https://www.routledge.com/our-customers/authors/publishing-guidelines>



"The use of **Generative AI tools** such as ChatGPT, Google Gemini, or Claude **to generate substantive content**, such as the analysis of data or the development of written arguments, **is not permitted**. If authors choose to **use Assistive AI tools to assist** in their research for a book, chapter, or article, they must **disclose this in the manuscript and on submission**. An author's final written text should be their own and reflect their own ideas, arguments, and conclusions, and for this reason **AI and LLM Models may not be listed as an author**." <https://www.e-elgar.com/author-hub/as-you-write-your-book-or-chapter/>



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"**Authors are allowed to use generative AI and AI-assisted technologies in the writing process** before submission, but only **to improve the language and readability**. (...) Authors should **disclose in their manuscript the use of AI and AI-assisted technologies** and a statement will appear in the published work. (...) Authorship implies responsibilities and tasks that can only be attributed to and performed by humans; The use of generative AI and AI-assisted tools in figures, images and artwork: **We do not permit the use of Generative AI or AI-assisted tools to create or alter images in submitted manuscripts**." <https://www.elsevier.com/de-de/about/policies-and-standards/publishing-ethics>

3. Own analysis of guidelines on genAI from scientific publishers – citations from most referenced guidelines



"The use of artificial intelligence (AI) tools such as ChatGPT or Large Language Models in research publications is expanding rapidly. (...) to state that **AI tools cannot be listed as an author** of a paper. AI tools cannot meet the requirements for authorship as they cannot take responsibility for the submitted work. (...) **Authors who use AI tools** in the writing of a manuscript, production of images or graphical elements of the paper, or in the collection and analysis of data, **must be transparent in disclosing in the Materials and Methods** (or similar section) of the paper how the AI tool was used and which tool was used. **Authors are fully responsible for the content of their manuscript**, even those parts produced by an AI tool, and are thus liable for any breach of publication ethics."
<https://publicationethics.org/guidance/cope-position/authorship-and-ai-tools>



"Authors who use such technology should describe, in both the cover letter and the submitted work in the appropriate section if applicable, **how they used it**. For example, if AI was used for writing assistance, describe this **in the acknowledgment section**. If AI was used for data collection, analysis, or figure generation, authors should describe this use **in the methods**. **Chatbots (such as ChatGPT) should not be listed as authors** because they cannot be responsible for the accuracy, integrity, and originality of the work, and these responsibilities are required for authorship. Therefore, **humans are responsible for any submitted material** that included the use of AI-assisted technologies. Authors should carefully review and edit the result because AI can generate authoritative-sounding output that can be incorrect, incomplete, or biased."
<https://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>



"Chatbots cannot be authors. (...) Authors should be **transparent when chatbots are used and provide information about how they were used**. (...) **Authors are responsible** for material provided by a chatbot in their paper and for appropriate attribution of all sources (...) Editors and peer reviewers should specify, to authors and each other, any use of chatbots in the evaluation of the manuscript and generation of reviews and correspondence. (...) **Editors need appropriate tools to help them detect content generated or altered by AI.**"
<https://wame.org/page3.php?id=106>

3. Own analysis of guidelines on genAI from scientific publishers – citations from most referenced guidelines

■ Common themes

Authorship

Transparency

Responsibility

Research integrity

Restrictions

- How genAI should not be used: prohibit the use of genAI to generate content, in the peer review process, and the creation of images (unless the research question explicitly involves genAI & is only permitted to improve readability and language)

4. Conclusion

- No single guidelines, rather several guidelines which are often referenced
 - General guidelines as a orientation, special guidelines are needed for specific disciplines or journals → levels of granularity
 - Contradiction between publishing houses and journals, between own guideline and referenced guidelines → individual choice of regulation fit
- Practical implementation of genAI in academic publishing cannot be fully covered by guidelines
 - Generating research questions & gaps or the specification of prompts & output, ...
- Aspects not covered by guidelines yet
 - Use of genAI in the peer review process, AI-Detection, full disclosure of the use of genAI

4. Conclusion

- Future development
 - Fast pace of technical development: How to adapt guidelines in time?
 - Bottom up vs. top down process: Who should drive genAI standards? Researchers or publishers? Joint process?
 - Uniform guideline possible? International guidelines from the Committee on Publication Ethics (COPE), or national solutions via central research actors like DFG?
- Problematic developments of genAI that cannot solved by guidelines remain
 - Originality, human creativity, environmental effects, ...

Literature

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Thanks for your attention!

Further questions:
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