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Peer Review

Review of: "The Role of Artificial Intelligence in the Lifecycle of Scientific Manuscripts: Authoring, Reviewing, and Editorial Selection"

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The paper «The Role of Artificial Intelligence in the Lifecycle of Scientific Manuscripts: Authoring, Reviewing, and Editorial Selection» is a comprehensive contribution to an important and timely issue. I agree with the main lines of the analysis of the author that the system of scientific publications faces fundamental challenges that can be exacerbated by the use of AI.

Nevertheless, I see room for improvement in the paper. I list my suggestions in the order of appearance in the paper:

1. In section 3.2, where the author discusses the “erosion of verifiability”, he writes: “this places the entire responsibility for fraud on authors, reviewers, and editors, a task that is becoming nearly impossible in an age of data saturation.” I think this sentence is misleading. First, the sentence should be about “fraud detection”, I guess. Second, who else other than authors, reviewers, and editors could have this responsibility? This analysis requires some clarification and a clear attribution of responsibilities with respect to handling fake references. To my understanding, the responsibility to handle this issue lies with the author, and submission processes may, for example, include a confirmation from the author that all references have been checked manually with respect to both existence (i.e., the references are real) and fit (i.e., the content of the cited references aligns with the content of the section/sentence in the paper where the citation appears).
2. The author convincingly demonstrates the usefulness of AI tools as a technical auditor. However, it becomes unclear who would be the agent that decides upon this step and actually performs this analysis and evaluates the result. The editor in a first screening of the paper, or the reviewer when

 doi.org/10.32388/7OEW2C

actually reviewing the paper? Both possibilities have their advantages and disadvantages, and the author should explain which option he would prefer and why.

3. Figure 1 (ironically generated with an AI tool) is unclear for two reasons. First, it neglects the fact that the editorial decision actually consists of two separate stages: In stage 2, the editor decides whether the paper actually fits the journal at all and whether the paper meets some minimal quality criteria (i.e., the technical verification via AI could be done in this step). In stage 4, the editor makes the final decision regarding publication based on the reviews, which may also include handling conflicting reviews. So there are four stages in total. Second, the graphic as such is confusing. For example, in stage 1, it includes an arrow (from the AI part) that directly points to stage 3 and bypasses stage 2 – but why? And why in stage 2 does the "AI arrow" directly point to stage 4? The arrows used in the figure make no sense with respect to the stages, I think. The figure should be redrawn taking these considerations into account.
4. In Table 2, line 5 (bias), the author correctly claims that AI bias can be systemic – but not necessarily opaque. In principle, it could be possible to test for the AI bias; so opaqueness is not a necessary condition.
5. In Table 3, the scenario "community reclamation" does not seem to be on the same logical level as the other three, as the role of AI is not outlined (in the other three, we have the (simplified) cases "no AI, fully human review", "full AI, no human reviewers," and "hybrid"). Actually, it seems that the fourth scenario is a sub-class of the "fair review model" with the two sub-classes "current editorial infrastructure and changed publishing economics" and "new editorial infrastructure".

Declarations

Potential competing interests: No potential competing interests to declare.