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EDITORIAL

NEITHER WITH NOR WITHOUT: ARTIFICIAL INTELLIGENCE VERSUS SUSTAINABILITY IN SCIENTIFIC PUBLISHING

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In the contemporary era, wherein virtually all human activities are converted into digital footprints, the influence of information systems and artificial intelligence (AI) within production and daily life domains has become increasingly pronounced. While the primary objectives of digital transformation are framed around achieving time efficiency, cost-effectiveness, and sustainability, one of its most salient unintended outcomes has been the emergence of digital pollution. Key contributors to this phenomenon include the substantial energy consumption of electronic devices, the carbon footprint and water usage associated with data centers, and the escalating issue of electronic waste. Furthermore, the accelerated computing resources required for AI applications exacerbate this environmental burden (1). At present, digital technologies are estimated to account for approximately 10% of global electricity consumption and nearly 4% of worldwide carbon emissions (2). Although digitalization has often been associated with an era of convenience, it is evident that the phenomenon also gives rise to significant sustainability challenges.

In evaluating the sustainability implications of digital transformation, it is crucial to consider the expanding role of AI in scientific publishing. A survey conducted on nearly 5,000 researchers from approximately 70 different countries shows that these tools will become even more prominent in the following years (3). 62% of participants think that AI surpasses human ability in writing assistance and error detection, and 72% want to use AI for academic papers in the following two years, next to the 57% who already have (3).

Initially employed for relatively limited tasks such as language editing and translation, AI has now been integrated into more complex stages of the publication process, including editorial decision-making, peer review, detection of ethical misconduct, and the acceleration of publication workflows. However, this transformation not only increases scientific productivity but also brings with it critical sustainability issues by affecting digital pollution, such as energy consumption, carbon emissions, and hardware waste.

In recognition of the importance of AI as a key driver of scientific productivity, we propose the concept of "environmentally sensitive editorial and authorship" to promote sustainability. This concept aims to encourage sensitivity in the use of AI and digital technologies, as well as promote ethical considerations in academic research. We believe that the fundamental "principles of environmentally sensitive editorial/authorship" can be: researchers should consider the carbon footprint and environmental impacts of experimental studies designed with advanced technological devices, chemicals, and so on; they should be mindful of responsible technology use and should employ AI applications only at necessary points rather than at every stage of research writing; they should avoid repetitive data analysis and text writing when using AI during research writing; and they should raise awareness by defining the framework of a "sustainable scientific publishing" culture by national and international publishing associations. Previous publishing guidelines, frameworks, and checklists on sustainability issues should be revisited to include sustainable AI strategies designed for authors, journals, and publishers alike.

Through deliberate policy development and intentional individual choices, the academic world can guide this technological shift toward outcomes that are not only innovative and efficient but also ethical, inclusive, and environmentally responsible.

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