Forensic Scientometrics (FoSci) Paris Declaration

Summary

Forensics Scientometrics (FoSci) is a forensic, data-driven effort to uphold scientific integrity and public trust in science. While we expect scientific literature to be sound and reliable, recent years have seen a surge in unreliable publications and questionable practices. We want to dispel this pollution by flagging problematic papers, actors, and systems, mitigating the effects and disincentivizing such behavior in the future. Our goals are to prevent these errors from spreading, to promote better policies for scientific endeavours, and to safeguard the positive impact of science on society. Moreover, we defend the complexity, dedicated debate, and collaborative spirit of the sciences at their best.

We invite individuals working as researchers, sleuths, civil servants, or journalists, working for metadata providers or in the publishing industry, who are committed to this declaration, to add their signatures. At this stage, this is meant to convey a personal, rather than institutional, commitment.

Mission and Vision

We are an international, interdisciplinary community committed to advancing research integrity and security. We care deeply about science, and we believe firmly in the ability of scientific study to decontaminate the scholarly literature. As a collective, we intend to do whatever we can to promote the consistency and reliability of scientific research output. We believe that research should be a sanctuary of fair competition and collaboration. We will mobilize a broad community–not only scholars, but also editors, publishers, metadata providers, journalists, governments, and funding agencies–committed to taking action to support this vision.

Contexts of knowledge production and dissemination

The research ecosystem has become marred by initiatives detrimental to the production and distribution of scholarly knowledge at multiple levels.

Academic hiring, promotion, and evaluation place pressure on scientists to publish increasing quantities of output. This pressure deteriorates the inherent value of scientific communication among peers, and its translation to the public. Institutions and funders measure success too often by quantity over quality, simplistic metrics, and leaderboard rankings, rather than responsible research assessment.

Publishers navigate a complex landscape, challenged by the rapid growth of scientific research and the rising demand for enriched metadata. Editors must review mountains of new work, identify qualified peer reviewers, and assess the quality and validity of both submissions and

reviews. Publishers manage multiple journals and other publication types, submit and update metadata, and investigate complaints. They also work to safeguard their professional reputation, compete for market share, and respond to the pressure of profit-driven stakeholders. When issues with publications are identified, these are often investigated, whether by publishers or sleuths, without adequate information. Research institutions have the leverage to demand the necessary information about affiliated research. Without the involvement of these institutions, the patterns and signals identified by forensic scientometric sleuths must be used as proxies for detailed information about the conduct of the research.

Society benefits from robust sciences. At its best, scientific creativity and innovation enables us to meet global and social challenges, from stewardship of the earth to human welfare. However, scientific knowledge can be weaponized (used to create confusion, to feed social polarization, and to delay or weaken legislation), and the scholarly practices that produce this knowledge corrupted (cherry-picked to back up ideological claims). This misuse is dangerous, precisely because of the social power of the sciences.

Challenges and strengths

Trustworthy science risks being obscured by a small but growing corpus of papers, people, organizations, and potentially governments polluting the integrity of research. The problems we currently research by forensic scientometrics vary considerably: author misrepresentation, data manipulation, fake conferences, image duplication, misconduct (including fabrication, falsification, and plagiarism), papermill operations, questionable research practices, sale of authorship and citations, sneaked references, stealth corrections, and tortured phrases. Meanwhile, these problems spread into wider domains, through the citation of fraudulent research in patents, clinical guidelines, and government policy, not to mention scholarly literature, including systematic reviews. Engaging in such problematic practices can entangle individuals and organizations in a cycle of compromised integrity, escalating issues from research integrity to broader security challenges.

One of the strengths of scientific research is its capacity for self-correction. The sciences are continually evolving, and improving the quality of scientific knowledge is part of the responsibility of practicing scientists. As part of our ethical dedication to the scientific method, we are obliged to participate in this evolution; we have the responsibility to support and enhance that capacity for correction. The origin of forensic scientometrics is the individual, manual, and often voluntary work of dedicated researchers. These methods and innovations, and the knowledge they produce, underpin the emerging domain of forensic scientometrics.

Aims

With forensic scientometrics, we participate in decontaminating a polluted scholarly ecosystem. Through **collective action,** we motivate those who produce and disseminate scientific research to share consistent, valid, and high-quality work. We **identify problematic practices** and **assess the causes** of such practices. By doing so, **we aim to prevent** research malpractice, misconduct, and manipulation, **improve the transparency and trustworthiness** of scientific research, **and transform** practices of research publishing and dissemination.

We want to empower the research community to counter these bad practices. We believe these aims require concerted action by all actors involved in research production and dissemination, including: sleuths, researchers, publishers, journal editors, metadata providers, funding agencies, and journalists. We will work with allies with vested interests in keeping science rigorous and trustworthy to enhance our influence, to propel the messages of this community, and to create change at a structural level.

We will open dialogues with policymakers to help shape new laws, regulations, and enforcement strategies to neutralize the processes leading to the publication of problematic papers. We will work to contribute positively rather than destructively: for example, if researchers are incentivized to publish fake papers, then we need to remove that incentive by helping build a better system. We will also promote **redemption paths**: procedures to extract researchers who have participated in problematic research practices, demonstrating that, in fact, the better part of valor is *transparency*.

Future Plans

This community of Forensic Scientometrics will communicate findings and successes to **reinforce positive contributions** of science globally. One of the most effective techniques for decontamination has been **communicating results with the public** through social and news media. The news media also draws upon scientific research, which needs to be responsibly interrogated. Collective action is needed to make our efforts **effective**, and translate our efforts into institutional change. We will initiate the **establishment of a more deliberate structure,** to support these efforts and expand our community.

The FoSci community will:

- Advocate for transformation
  - Open a dialogue with policymakers to design de-incentivizing strategies to tackle the mass production of problematic papers
  - Advocate for reform of institutions involved in scientific research based on our findings
- Develop expertise and share knowledge
  - Facilitate training for researchers and professionals exploring these questions
  - Share and provide research and data in the FoSci community
  - Establish a regular cycle of professional meetings
  - Improve the tools and methods of forensic scientometrics
- Improve our ability to communicate our findings
  - Inform editorial boards, publishers, research institutions, governments and all relevant involved parties about our work
  - Participate in building software and tools to enable the reproducibility of our own forensics findings
  - Establish points of contact between FoSci members and concerned organizations

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