



Open Science

[Source: TH](#)

Open science is a set of principles and practices that aim to make **scientific research accessible to everyone**, ensuring that the production of knowledge is **inclusive, equitable, and sustainable**.

- It encompasses principles such as **free access to publications, availability of datasets, open-source software utilisation, and citizen science engagement**.
- The [UNESCO Recommendation on Open Science](#) defines and outlines shared values and principles for open science.
- **Benefits of Open Science:**
 - Provides **free access to knowledge**, broadening research reach and enhancing recognition.
 - Fosters **collaboration across institutions and countries**, enabling joint projects.
 - Promotes **transparency and reproducibility**, improving research quality while maximising the impact of funding through **FAIR (Findable, Accessible, Interoperable, and Reusable)** principles.
- **Ethical Considerations Related to Open Science:** Open-access publishing demands transparency from authors, rigorous peer-review from publishers, and adherence to ethical standards to ensure research quality.
- **Impact of AI on Open Science:** [AI](#) boosts **data mining and analysis**, fostering collaboration and data sharing in open science.
 - However, it introduces challenges like bias and reliability issues.
- **Challenges to Open Science:** Technological barriers, institutional resistance, economic constraints, and legal issues, such as [intellectual property](#) and data privacy concerns, hinder the widespread adoption of open science.

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VALUES

Quality and integrity

Collective benefit

Equity and fairness

Diversity and inclusiveness



PRINCIPLES

Transparency, scrutiny, critique and reproducibility

Equality of opportunities

Responsibility, respect and accountability

Collaboration, participation and inclusion

Flexibility

Sustainability

Read More: [Draft National Science, Technology and Innovation Policy](#)

PDF Refernece URL: <https://www.drishtias.com/printpdf/open-science>