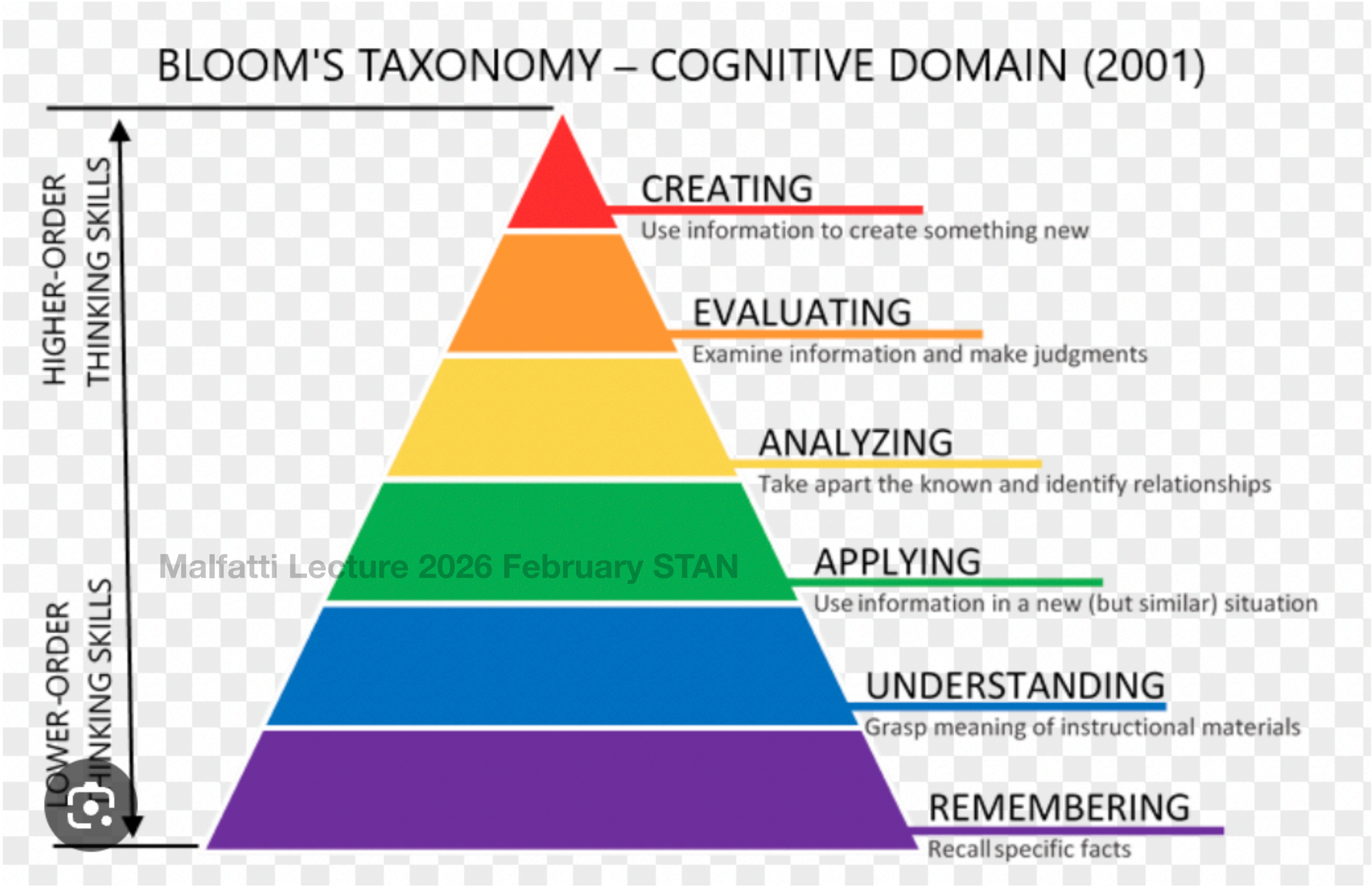
Collaborative lecture

00. Etica nella scienza, plagio ed uso intelligenza artificiale

Malfatti Lecture 2026 February STAN

The path we take as a scientists



The Four Scientific Ethical Principles

Autonomy

Research must respect individuals' right to autonomy. This means that research must respect people's right to make their own decisions – in accordance with their own values and beliefs. Generally, the consideration for autonomy requires that capable adults to a large extent should have the opportunity to decide over their own lives. The principle of autonomy thus demands that one does not manipulate others, for example, by providing them with incorrect information, or by withholding information that can be expected to influence their decisions.

Beneficence

Research should promote the good. This means, in a broad sense, that research should create sufficient value to outweigh any risks, inconveniences, or burdens associated with conducting the trial.

In the context of scientific projects, it must be demonstrated that new questions are being addressed, that the design of an experiment is well-chosen in relation to the question being answered, that the project is practically feasible, that the researcher in charge is competent, and so on. All this must ensure that the project has the potential to contribute relevant value for either the participants themselves or the broader society.

Non-maleficence

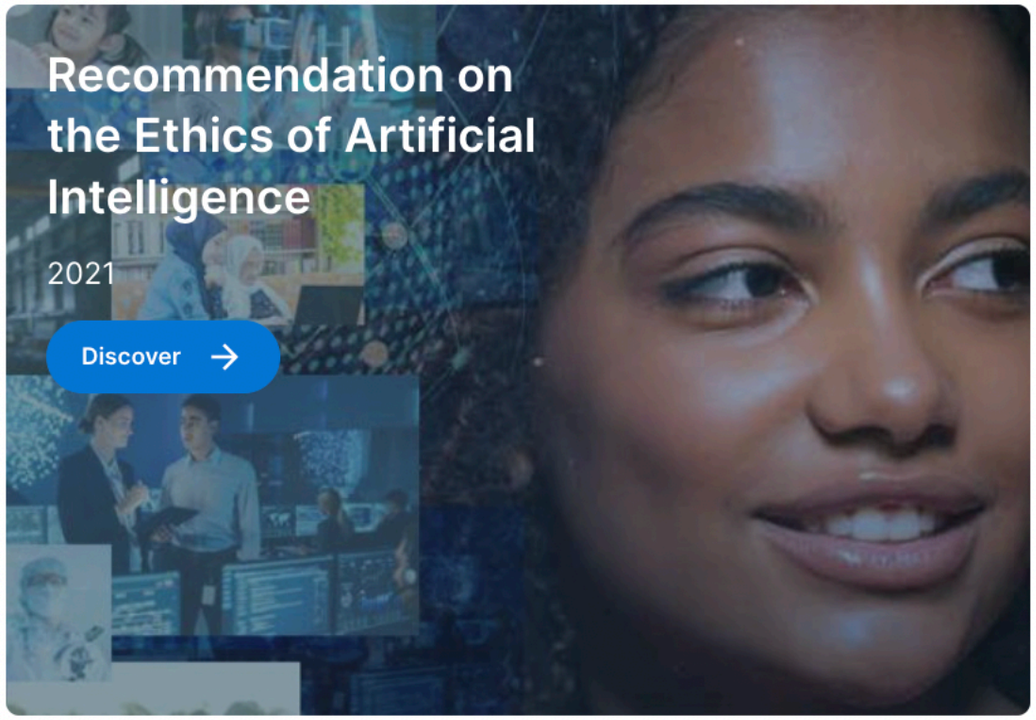
Research must not cause harm. This means, broadly, that there are limits to the risks, inconveniences, and burdens that participants may be subjected to. This applies even if a project has the potential to create significant value, and even if the project respects participants' autonomy in all respects.

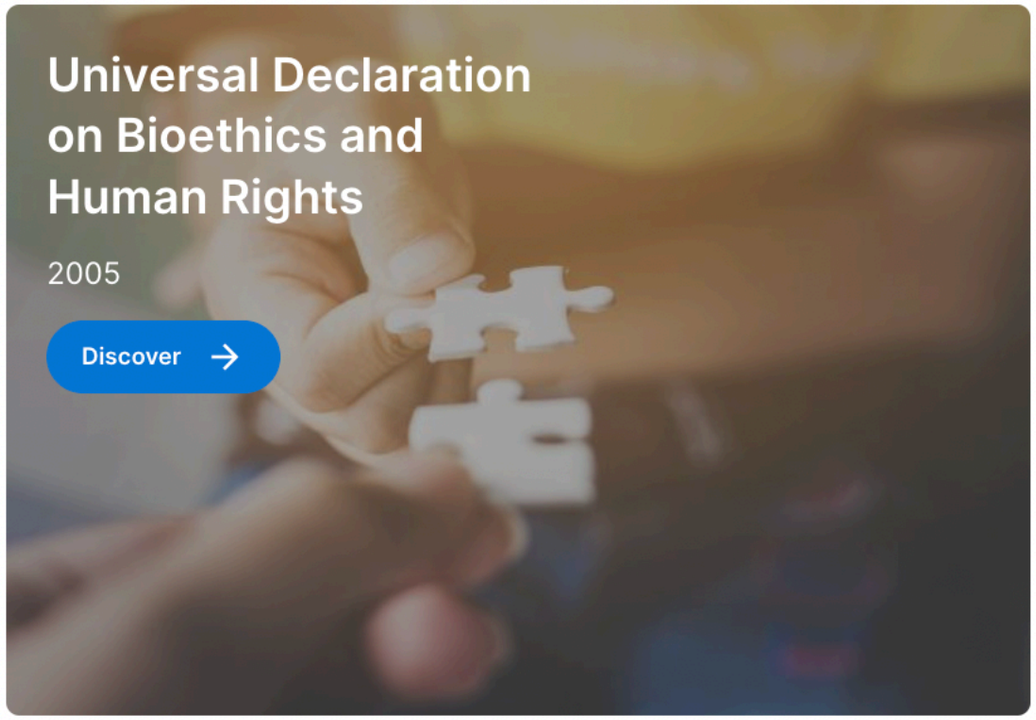
Justice

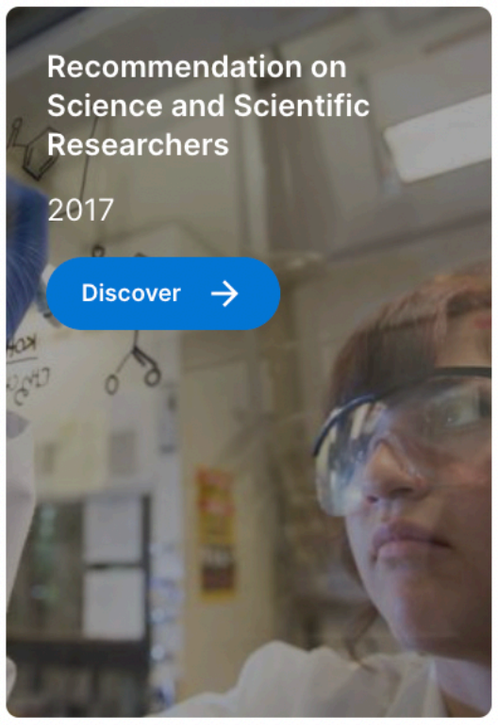
Research must be fair. This broadly means that a reasonable distribution of the benefits and burdens arising from a scientific trial must be ensured, unnecessary inclusion of vulnerable populations should be avoided, and equal opportunities to participate in scientific trials should be secured. Finally, the principle of justice demands active efforts to enroll members of underrepresented groups in research projects so that all members of society can receive their fair share of the benefits of scientific trials.

https://researchethics.dk/research-ethics-themes/the-four-scientific-ethical-principles

In the context of its work on bioethics and ethics of science & technology, the Organization performs the following major functions: standard-setter, laboratory of ideas, capacity-builder and catalyst for international cooperation.


Recommendation on the Ethics of Artificial Intelligence
2021
Discover


Universal Declaration on Bioethics and Human Rights
2005
Discover


Recommendation on Science and Scientific Researchers
2017
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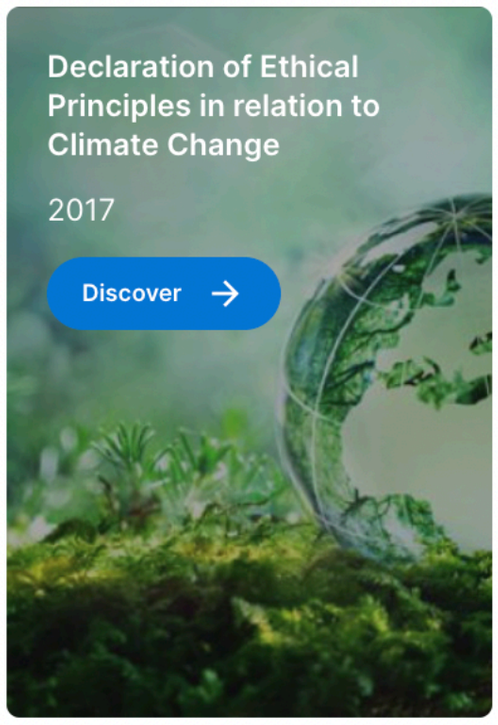
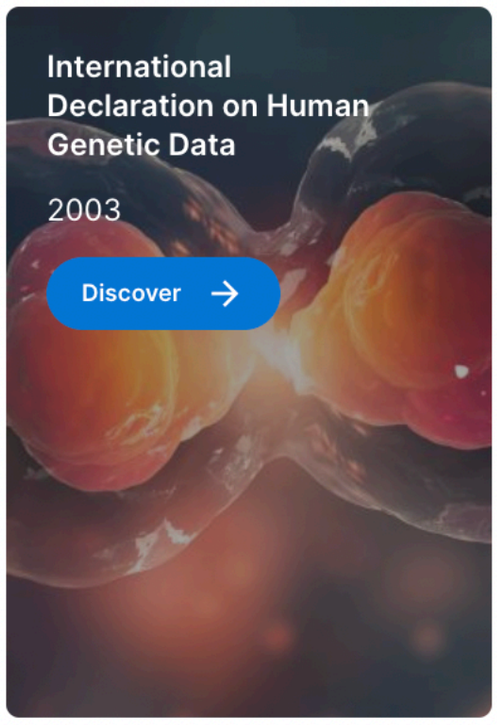
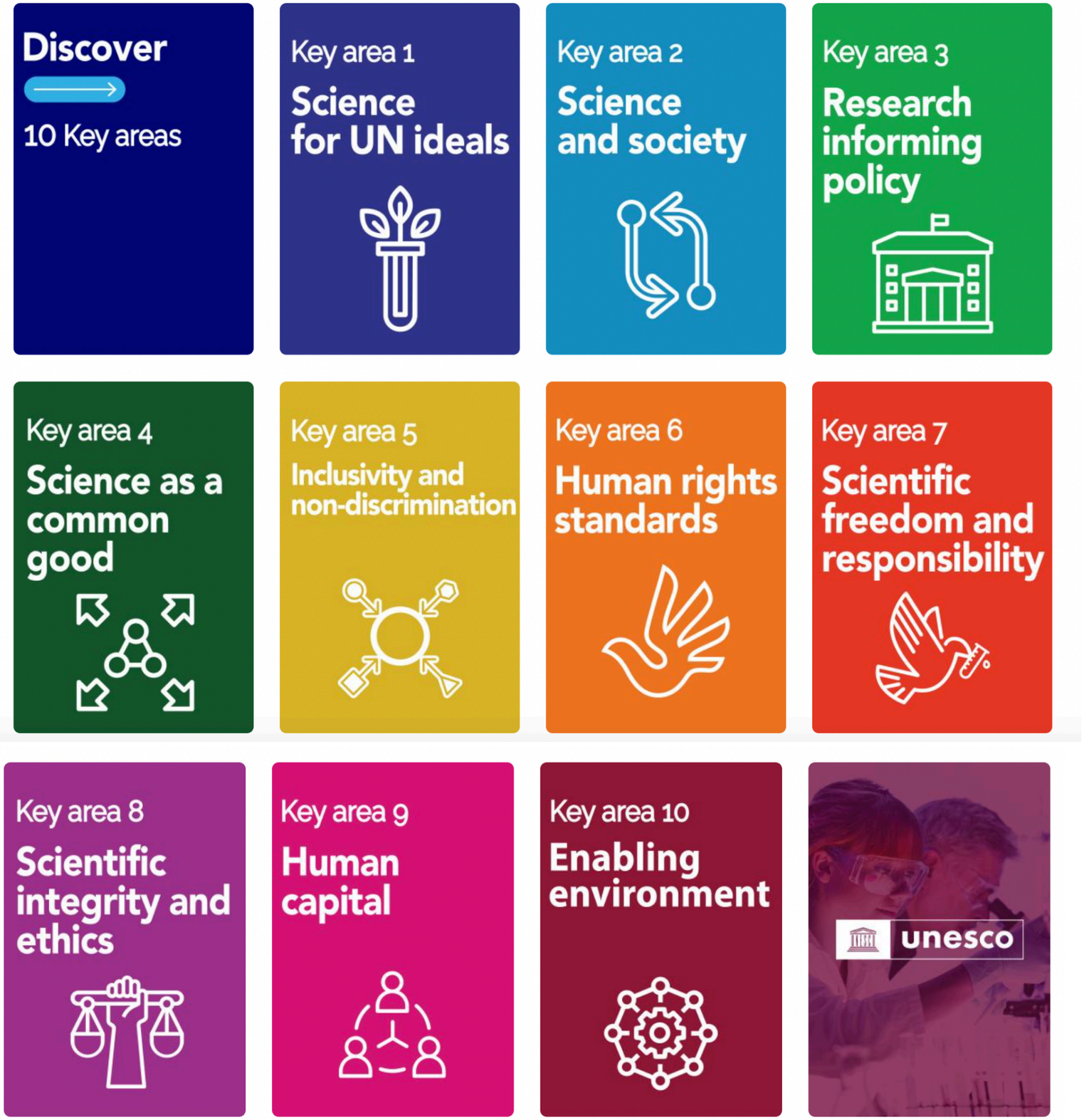

Declaration of Ethical Principles in relation to Climate Change
2017
Discover


International Declaration on Human Genetic Data
2003
Discover


Universal Declaration on the Human Genome and Human Rights
1997
Discover

Science and scientific researchers

https://www.unesco.org/en/recommendation-science?hub=387



Principles of scholarly freedom and scholarly responsibility

Researchers should be **free** to pursue lines of inquiry and the communication of knowledge and ideas **without fear of repression or censorship**

Ownership idea, collaborative research and giving credits

At the same time, they have the **ethical obligation** to uphold **intellectual integrity and avoid preventable harms** that may arise in the course of research or its communication

Data should be FAIR. Data meet the principles of findability, accessibility, interoperability, and reusability


unesco

AI authorship

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

Notably an attribution of authorship carries with it accountability for the work, which cannot be effectively applied to LLMs

AI misuse to plagiarise paper and research

https://www.nature.com/nature-portfolio/editorial-policies/plagiarism

Plagiarism and fabrication

Plagiarism is unacknowledged copying or an attempt to misattribute original authorship, whether of ideas, text or results

As defined by the ORI (Office of Research Integrity), plagiarism can include, **"theft or misappropriation of intellectual property and the substantial unattributed textual copying of another's work”**

Plagiarism can be said to have **clearly occurred when large chunks of text have been cut-and-pasted without appropriate and unambiguous attribution**. Such manuscripts would **not be considered for publication**

"Text recycling" or reuse of parts of text from an author's previous research publication is a form of self-plagiarism

When **reusing text,** whether from the author's own publication or that of others, appropriate attribution and **citation is necessary** to avoid creating a misleading perception of unique contribution for the reader

https://www.nature.com/nature-portfolio/editorial-policies/plagiarism

How to use AI?

1

RESPECT, PROTECTION AND PROMOTION OF HUMAN RIGHTS AND FUNDAMENTAL FREEDOMS AND HUMAN DIGNITY

2

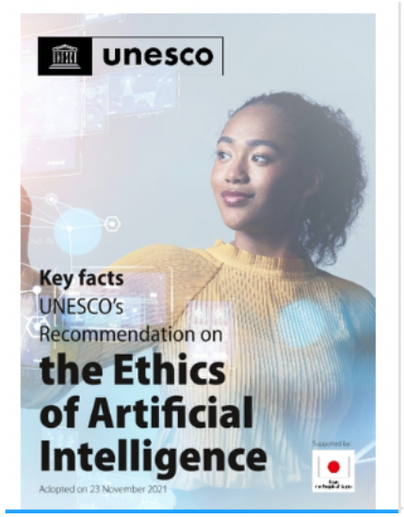
LIVING IN PEACEFUL, JUST, AND INTERCONNECTED SOCIETIES

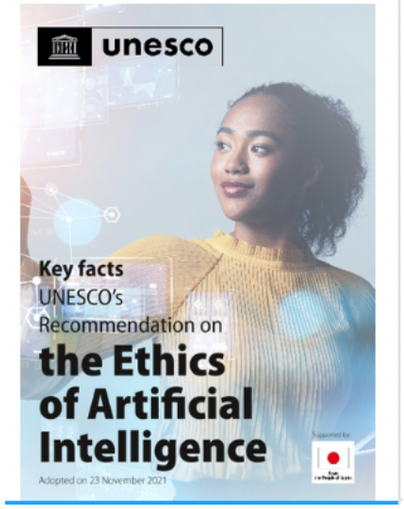
3

ENSURING DIVERSITY AND INCLUSIVENESS

4

ENVIRONMENT AND ECOSYSTEM FLOURISHING





1 PROPORTIONALITY AND DO NO HARM

The use of AI systems must not go beyond what is necessary to achieve a legitimate aim. Risk assessment should be used to prevent harms which may result from such uses.

2 SAFETY AND SECURITY

Unwanted harms (safety risks) as well as vulnerabilities to attack (security risks) should be avoided and addressed by AI actors.

3 RIGHT TO PRIVACY AND DATA PROTECTION

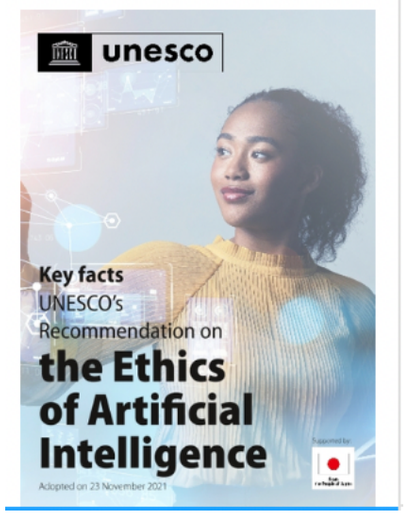
Privacy must be protected and promoted throughout the AI lifecycle. Adequate data protection frameworks should also be established.

4 MULTI-STAKEHOLDER AND ADAPTIVE GOVERNANCE AND COLLABORATION

International law and national sovereignty must be respected in the use of data, meaning States can regulate the data generated within or passing through their territories. Additionally, participation of diverse stakeholders is necessary for inclusive approaches to AI governance.

5 RESPONSIBILITY AND ACCOUNTABILITY

AI systems should be auditable and traceable. There should be oversight, impact assessment, audit and due diligence mechanisms in place to avoid conflicts with human rights norms and threats to environmental wellbeing.



6 TRANSPARENCY AND EXPLAINABILITY

The ethical deployment of AI systems depends on their transparency and explainability. For example, people should be made aware when a decision is informed by AI. The level of transparency and explainability should be appropriate to the context, as there may be tensions between transparency and explainability and other principles such as privacy, safety and security.

7 HUMAN OVERSIGHT AND DETERMINATION

Member States should ensure that AI systems do not displace ultimate human responsibility and accountability.

8 SUSTAINABILITY

AI technologies should be assessed against their impacts on 'sustainability', understood as a set of constantly evolving goals including those set out in the UN's Sustainable Development Goals.

9 AWARENESS AND LITERACY

Public understanding of AI and data should be promoted through open and accessible education, civic engagement, digital skills and AI ethics training, media and information literacy.

10 FAIRNESS AND NON-DISCRIMINATION

AI actors should promote social justice, fairness, and non-discrimination while taking an inclusive approach to ensure AI's benefits are accessible to all.

Modified from Burlina P., Joshi, N., Paul, W., Pacheco K. D., and Bressler, N.M. (2021). Addressing artificial intelligence bias in retinal diagnostics.

Generative AI

Not having an idea and asking to AI to give you one or a few

AI says about ITSELF:

Key Areas of Application

- **Hypothesis Generation:** AI can analyze vast literature to suggest novel research directions.
- **Simulation & Experimentation:** Automating complex simulations to reduce discovery timelines.
- **Code Generation:** Assisting in creating research software, while requiring human validation.

PLOS Computational Biology

PLoS Comput Biol. 2025 Oct 28;21(10):e1013588. doi: 10.1371/journal.pcbi.1013588

Ten simple rules for optimal and careful use of generative AI in science

Mohamed Helmy [1,2,3,4,5,*], Lingling Jin [3], Amr Alhossary [6], Tamer Mansour [7,8], Diogo Pellagrina [1], Kumar Selvarajoo [5,9,10,11]

Editor: Scott Markel[12]

Rule 7. Maintain scientific rigor in AI contributions.

To maintain research integrity, scientific rigor must remain a cornerstone when incorporating AI-generated content into research. In addition to critically evaluating all AI contributions, including text, data analyses, and visualizations, AI outputs should be treated as supplementary tools rather than definitive conclusions, requiring thorough review and, where necessary, corroboration with independent methods. The research questions, main findings and study conclusions should all be done through the researchers, not the AI tools.