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la science !

# Open Science :
# From Transparency to Reproducibility

# Open science

Make research **more transparent, accessible, and collaborative**

Encourage the **sharing of data, methodologies, software code, and research results**

**Transparency** is a key element of open science, but it does not necessarily guarantee research reproducibility

# Research Reproducibility

Ability to replicate a scientific experiment and obtain comparable or similar results

> *Other teams can reproduce the experiment without relying solely on the original experimental setup and software code*

**Replicability** closely connected to reproducibility

> *The focus is on reproducing the experiment using the same experimental setup and software code*

**Repeatability** refers to the ability to reproduce the experiment within the same team using the same methods and tools

**Open science** promotes transparency, resource sharing, collaboration in the research process, and resource reuse

**Reproducibility** focuses on reproducing scientific results

Both concepts are essential for improving
**the quality and trustworthiness of scientific research**

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# Open science and reproducibility of research results
# 2 major components of scientific integrity

## Open science

*Make research more transparent, accessible, and collaborative*

Contribute to scientific integrity

Oneself does not guarantee scientific integrity

## Research Reproducibility

*Ability to replicate a scientific experiment and obtain comparable or similar results*

**Make sure the results of research are reliable, verifiable, and valid**

INTEGRITY    In addition to transparency, accessibility and reproducibility, scientific integrity also includes aspects such as research ethics, respect for participants' rights, disclosure of conflicts of interest, methodological rigor, intellectual honesty, and social responsibility in research.

Is the reproducibility of research results so simple to implement?

# Nature and requirements of reproducible research can vary across disciplines

**Different research methodologies and techniques** according to research domain

Specific exemple : **Registering clinical trials** to enhance transparency, traceability, ethical compliance, and **reproducibility**

Disciplines work with **different types of data** : qualitative or quantitative data, experimental data, observational data

Specific approaches to document, share, and analyze these different types of data

Publication and data sharing standards vary from one discipline to another

Some disciplines have established **standards for publishing data**

Disciplines employ a diverse range of models and analyses to interpret data

Are good **open software development practices** integrated in all disciplines ?

**Disciplinary culture and standards** influence how reproducibility is perceived and addressed

Some disciplines may place greater emphasis on reproducibility

How to move forward ?

# A national reproducible research network

Well done on organizing this third symposium.

The reproducibility crisis is being addressed by a growing number of disciplines

This has been proven by these two days.

Since the initial seminar at Pasteur in March 2023, diversity has increased.

Your network is being supported by the French Ministry of Higher Education and Research. A position that

is focused on network management and can also analyze the specific differences and obstacles or questions

within each discipline.

Thank you, let's move forward together!

# Thanks!

Isabelle Blanc