



**MINISTÈRE  
DE L'ENSEIGNEMENT  
SUPÉRIEUR  
ET DE LA RECHERCHE**

*Liberté  
Égalité  
Fraternité*

# SOFTWARE IN THE FRENCH PLAN FOR OPEN SCIENCE

**Roberto Di Cosmo**, co-chair Software and Source Code College  
Director, Software Heritage, Inria and Université Paris Cité

@rdicosmo  
roberto@dicosmo.org

Paris, November 30th 2023 College meeting with SPOS 2023 participants



The poster features a teal background with a central graphic of three overlapping circles (white, yellow, and purple) and a green funnel shape above them. The text is centered and uses a mix of white and purple colors.

## NATIONAL PLAN FOR OPEN SCIENCE

4TH JULY 2018

#openscience

esr.gouv.fr



**Launch on 4 July 2018** by the Minister for Higher Education, Research and Innovation

- First Commitment : **Generalise open access to publications**
- Second Commitment : **Structure research data and make it available through open access**
- Third Commitment : **Be part of a sustainable european and international open science dynamic**

# Governance : The Open Science Committee

## Open science steering committee

Ministry of Higher Education, Research (MESR), research performing organisations, Universities, National Research Agency (ANR), Couperin consortium, High Council for Evaluation of Research and Higher Education (Hcéres)

Makes decisions, arbitrates the use of funds from the National Open Science Fund

## Permanent secretariat for Open Science

MESRI, research performing organisations, Universities, ANR, Couperin consortium, Hcéres, ADBU, EPRIST, Colleges

Prepares decisions, proposes guidelines, monitors work

## Colleges

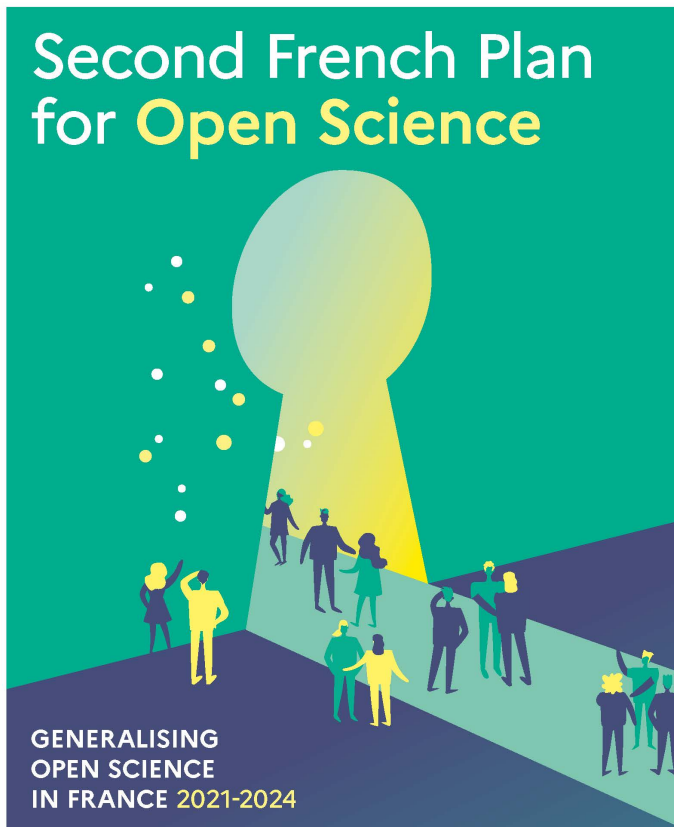
Publications, Research Data, Skills and Training, Europe and International  
(72 membres from 44 institutions)

Investigate issues, propose guidelines, initiate and manage projects

# Main achievements

- Creation of the **open science monitor**: measurement of the rate of French scientific publications in open access
- Progressive deployment of **open science strategies within research performing organisations and universities**, creation of a network of open science referents
- **Training actions targeted at doctoral students**: Passport to open science, practical guide for Phd students
- Contribution to the **structuring and governance of the EOSC**: structuring of EOSC France, French presence on the board and other EOSC governance bodies
- **Support to international open science infrastructures**: SCoSS labelled projects (DOAB, PKP, OpenCitations), RDA, **Software Heritage**

Software gets on the radar



English



French



Launch on 6 July 2021

- Multiplying the **levers for change** in order to **generalise open science practices**
- Structuring the **policy for opening up or sharing research data**
- New commitments to the **opening of source code** produced by research
- **European and international inclusion** in the context of the French Presidency of the European Union
- **Disciplinary and thematic variations**: open science policies must be adapted to disciplinary specificities

# Governance : The Open Science Committee

## Open science steering committee

Ministry of Higher Education, Research (MESR), research performing organisations, Universities, National Research Agency (ANR), Couperin consortium, High Council for Evaluation of Research and Higher Education (Hcéres)

Makes decisions, arbitrates the use of funds from the National Open Science Fund

## Permanent secretariat for Open Science

MESRI, research performing organisations, Universities, ANR, Couperin consortium, Hcéres, ADBU, EPRIST, Colleges

Prepares decisions, proposes guidelines, monitors work

## Colleges

Publications, Research Data, Skills and Training, Europe and International  
Software and Source code (23 members!)

Investigate issues, propose guidelines, initiate and manage projects

**Co-chairs :** Roberto Di Cosmo (Inria/Université Paris Cité), François Pellegrini (Université de Bordeaux)

**Members :**

- Florent CHUFFART (Université Grenoble Alpe)
- Mélanie CLÉMENT-FONTAINE (Université Paris-Saclay - Versailles Saint-Quentin)
- Ludovic COURTÈS (Inria)
- Sébastien GÉRARD (Université Paris-Saclay, CEA, List)
- Mathieu GIRAUD (CNRS, Université de Lille)
- Timothée GIRAUD (CNRS)
- Jean-Yves JEANNAS (Université de Lille, AFUL)
- Nicolas JULLIEN (IMT Atlantique)
- Daniel LE BERRE (Université d'Artois, CNRS)
- Violaine LOUVET (CNRS / Université Grenoble Alpes)
- Chiara MARMO (Université Paris Saclay)
- Camille MAUMET (Inria, Univ Rennes, CNRS, Inserm)
- Clémentine MAURICE (CNRS)
- Grégory MIURA (Université Bordeaux Montaigne)
- Raphaël MONAT (Inria Université de Lille)
- Sophie RENAUDIN (AP-HP)
- Jeanne ROBINEAU (IRD)
- Nicolas ROUGIER (Inria, Université de Bordeaux, CNRS)
- François SABOT (IRD – Mission Science Ouverte)
- Sylvie TONDA-GOLDSTEIN (Inria)
- Samuel THIBAUT (Université de Bordeaux)

## Path Three :

# Opening up and promoting source code produced by research

7

Recognize and support the dissemination under an open source license of software produced by publicly funded research programmes

8

Highlight the production of source code from higher education, research and innovation

9

Define and promote an open source software policy

« The opening of software source code is a major challenge for the **reproducibility** of scientific results. »

« Distribution of software products under **open source licence** will be preferred. »



## Define and promote an open source software policy

- Produce a **National Charter for Open Source Software** coming from higher education, research and innovation
- Develop the **link between data and software** through a network of **Chief Data Officers** in the various universities and research performing organisations.
- Develop the **economic models of open source software** and make them known within commercialization services
- **Support Software Heritage** and recommend it for the archiving and referencing of source code

## Recognise source code as a contribution to research

- Create an **open source research software prize**
- **Provide greater recognition** for software production in the career of researchers, research support staff

## Build an ecosystem that connects code, data and publications

- Develop **proper coordination** between software forges, open publication archives, data repositories and the scientific publishing sector.

## The first national Open Science award for Research Software

### 2022 edition

- 120+ high quality submissions
- 4 prizes
- 6 accessit
- 4 categories (inclusiveness)
- awarded by the Ministry of Research

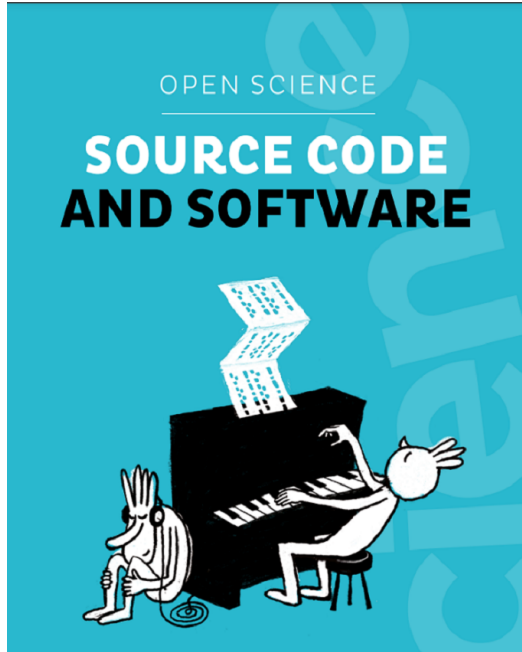


### Institutionalised as an annual award

**2023 edition completed**, already inspired other countries (e.g. Australian award, Helmholtz award)



## Guide for PhD students



EN



FR



## Open Science Monitor



## Report on software forges



EN



FR



## Software Award report

OPEN LETTER 

### Establishing a national research software award [version 1; peer review: 2 approved]

Isabelle Blanc Catala , Roberto Di Cosmo , Mathieu Giraud , Daniel Le Berre .

Violaine Louvet , Sophie Renaudin,

College of experts for source code and software Committee for Open Science

This article is included in [Software gateway](#)



Article

Authors

Metrics

### Abstract

Software development has become an integral part of the scholarly ecosystem, spanning all fields and disciplines. To support the sharing and creation of knowledge in line with open science principles, and particularly to enable the reproducibility of research results, it is crucial to make the source code of research software available, allowing for modification, reuse, and distribution.

Recognizing the significance of open-source software contributions in academia, the second French Plan for Open Science, announced by the Minister of Higher Education and Research in 2021, introduced a National Award to promote open-source research software. This award serves multiple objectives: firstly, to highlight the software projects and teams that have devoted time and effort to develop outstanding research software, sometimes for decades, and often with little recognition; secondly, to draw attention to the importance of software as a valuable research output and to inspire new generations of researchers to follow and learn from these examples.

We present here an in-depth analysis of the design and implementation of this unique initiative. As a national award established explicitly to foster Open Science practices by the French Minister of





## Software Heritage in the National Strategy of Research Infrastructures



March 8th 2022

For the first time

Research infrastructures

for software

And not only software

for research infrastructures

Software Heritage is a universal archive whose mission is to collect, preserve and make easily accessible the source code of all publicly available software, with all its development history.

Software Heritage contributes to building the software pillar of Open Science, by meeting two key needs: the permanent and public archiving of source code of software produced or used by research, and the accurate referencing of versions used in experiments, thus facilitating reproducibility.

Publicly available source code is collected in several ways:

- Automatically and regularly from code hosting platforms, such as GitHub, GitLab.com or BitBucket, and package archives, such as Npm or PyPi;
- Following a request on the "Save Code Now" interface;
- By deposit from the multidisciplinary open archive platform HAL.

All source code, with its development history, is integrated into a specific data structure, a directed acyclic graph (DAG), and all software artifacts in the archive are associated with semantic and persistent cryptographic identifiers, called SWHIDs, which guarantee their integrity.

**Relations with economic actors and/or socio-economic impact**

Supported by a non-profit organisation, with the aim of becoming an international organisation, Software Heritage is a shared infrastructure in partnership with UNESCO, which works to preserve and make accessible the source code of all publicly available software, for the benefit of industry, research, culture and society as a whole.

**Open science and data**

- The source codes produced by the infrastructure are open on a software forge: <https://forge.softwareheritage.org>
- Annual data production: 100 TB
- The validated and described data are published on a data repository: <https://archive.softwareheritage.org>

**Category:** Project  
**Type of infrastructure:** single site  
**Infrastructure location in France:** Paris  
**French supporting institutions:** Inria

**Director or BI representative in France:**  
Roberto Di Cosimo  
**Construction:** 2015  
**Operation:** 2016  
**Stakeholders in France:** CSA, CNRS, DINUM, Inria, MERS, Université de Paris, Sorbonne U  
**Contact in France:** [info@softwareheritage.org](mailto:info@softwareheritage.org)  
**Website:** [www.softwareheritage.org/?lang=fr](http://www.softwareheritage.org/?lang=fr)

**International dimension**

**Partner countries IT (Université de Bologne, Université de Pavi, MIQ-DIANDI, UNESCO)**  
**Website:** [www.softwareheritage.org/support/sponsors](http://www.softwareheritage.org/support/sponsors)

French national strategy on research infrastructures 1111 241

## Takeaway

- First research software policy **institutionalised at national government level**
- Strong commitment to **put software on par with publications**
- Clear vision to take into account **all the complex facets** of research software
- Desire to **collaborate openly** at the international level



Mission statement : <https://www.ouvirlascience.fr/research-software-as-a-pillar-of-open-science/>  
Software College homepage : <https://www.ouvirlascience.fr/software-and-source-codes-college/>

## Come in, we're open

# We want to hear from you