OPEN SCIENCE

HANDBOOK

Updated in november 2024

CENTRALE LYON

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Foreword

Since 2019, Centrale Lyon has formalized an organization and policy framework to support its actions in favor of open science. The institution's open science working group brings together all relevant stakeholders within the school : Research and Innovation Department, library, computing center, Research Partnership and Promotion Office, Centrale Innovation, Security and Defense Officer, among others. This working group has developed two successive open science roadmaps.

The first roadmap, covering the period 2020–2023, focused on open access to publications, leading to the systematic indexing of Centrale Lyon's publications in HAL, with an increasing percentage of accessible full texts (nearly 70%) on the HAL Centrale Lyon portal, launched in March 2023.

The second roadmap, presented to the Scientific Council in March 2024, aims to continue these efforts regarding publications and has also taken on the challenge of research data management, focusing on three main areas:
• Assessing current practices and expectations;
• Providing support and training on making data FAIR-compliant;
• Implementing shared solutions for data storage, backup, and archiving.

This guide, originally created as part of the first roadmap, is now updated in November 2024 to reflect recent developments both nationally and at Centrale Lyon. Its primary goal is to provide Centrale Lyon's researchers with practical information and recommendations that can be quickly mobilized, as well as the contacts for resource persons within the institution.
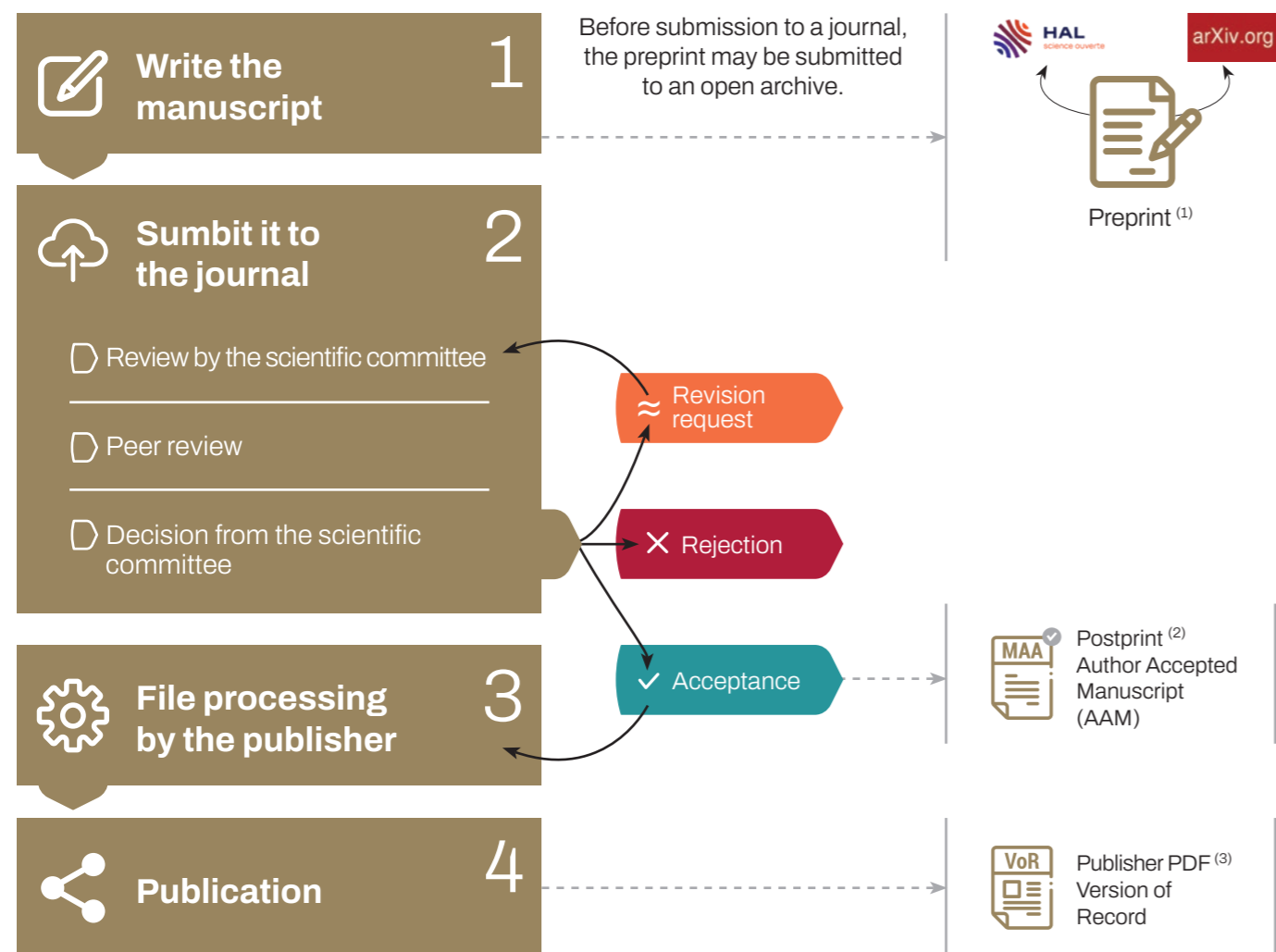
The local initiatives at Centrale Lyon align with national and European open science policies, as promoted by the Ministry of Higher Education, Research, and Innovation (MESRI) through the National Open Science Plans. Centrale Lyon is thus fully committed to the response frome the Lyon/Saint-Étienne site to the MESRI's call for interest, which aims to coordinate actions for data management and openness.

The authors of this guide hope it will be useful to all researchers at the institution (and beyond), whether they wish to publish in open access, deposit in HAL, draft a data management plan, understand when to share (or not share) their data, or undertake any other open science activities that may be addressed by open science actors at Centrale Lyon.

Christophe Corre
Director of Research and Innovation
Centrale Lyon

Publication cycle

Making an article open access* can be achieved by publishing in an open access journal and/or by submitting the article to an open archive* like HAL. The 2016 Digital Republic Act* made thesecond option much easier. What version of the article can be open, though? And at what point inthe publishing process can this happen? Under what circumstances? This two-page infographic hasall the answers!
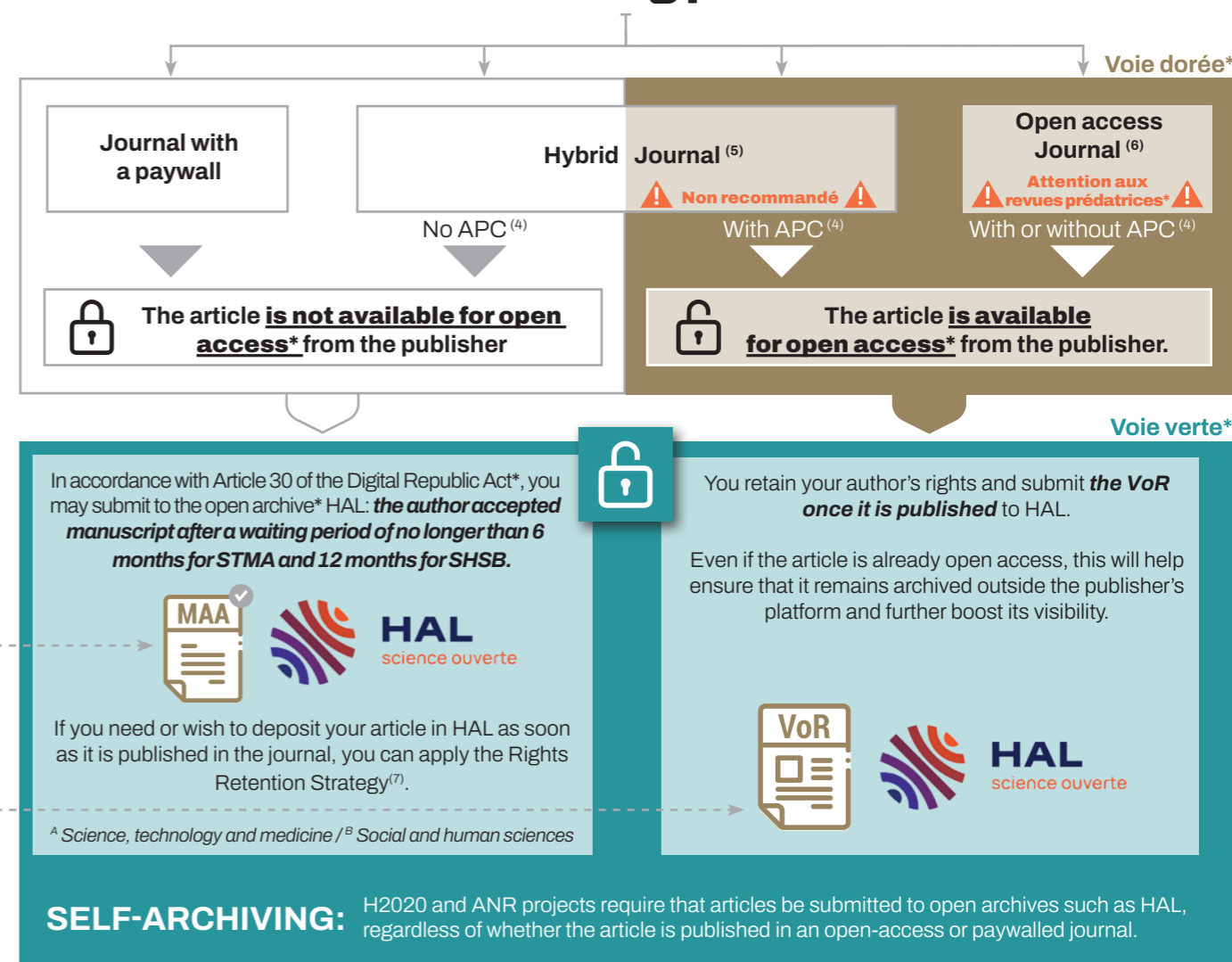
1 Write the manuscript

Before submission to a journal, the preprint may be submitted to an open archive.

HAL science ouverte   **arXiv.org**

Preprint (1)

2 Sumbit it to the journal

- Review by the scientific committee
- Peer review
- Decision from the scientific committee

≈ Revision request

✕ Rejection

✓ Acceptance

3 File processing by the publisher

MAA Postprint (2) Author Accepted Manuscript (AAM)

4 Publication

VoR Publisher PDF (3) Version of Record

PREPRINT, AAM, VOR… WHAT DOES IT ALL MEAN?

(1) Preprint
The version of an article before the peer review process has taken place, which does not include any changes requested by the journal's review committee.

(2) Postprint or Author Accepted Manuscript (AAM)
The version of the article accepted for publication that includes the changes requested by the review committee. This version, produced by the author, does not include any formatting from the publisher (page numbers, logos, copyright notices, etc.) but its content is identical to the published version (VoR).

(3) Publisher PDF or Version of Record (VoR)
The final version of the article, formatted and published by the publisher.

*see glossary

Publishing an article in **open access**

The article is being published in…

Voie dorée*

Journal with a paywall		Hybrid Journal (5) ⚠ Non recommandé ⚠	Open access Journal (6) ⚠ Attention aux revues prédatrices* ⚠
	No APC (4)	With APC (4)	With or without APC (4)

🔒 The article **is not available for open access*** from the publisher

🔓 The article **is available for open access*** from the publisher.

Voie verte*

In accordance with Article 30 of the Digital Republic Act*, you may submit to the open archive* HAL: *the author accepted manuscript after a waiting period of no longer than 6 months for STMA and 12 months for SHSB.*

MAA   **HAL** science ouverte

If you need or wish to deposit your article in HAL as soon as it is published in the journal, you can apply the Rights Retention Strategy(7).

A *Science, technology and medicine* / B *Social and human sciences*

You retain your author's rights and submit *the VoR once it is published* to HAL.

Even if the article is already open access, this will help ensure that it remains archived outside the publisher's platform and further boost its visibility.

VoR   **HAL** science ouverte

SELF-ARCHIVING: H2020 and ANR projects require that articles be submitted to open archives such as HAL, regardless of whether the article is published in an open-access or paywalled journal.

OPEN ACCESS JOURNALS: HANDY DEFINITIONS

(4) APC : the fees paid by an author (or their institution) to the publisher of a scientific journal for the right to publish an open access article. APC stands for 'author publication charges' or 'article processing charges', but there is good reason to be suspicious of these fees charged by certain publishers: the amount paid often has little or nothing to do with the actual publishing costs, but is instead based on the journal's prestige. So, in essence, APC often really stands for 'article prestige charges'.

(5) Hybrid Journals : journals with subscription fees that charge authors APCs to publish open access articles. We do not recommend paying to publish in these journals, as they are essentially doubledipping: the author pays to publish, and the institution pays for access to articles behind the paywall. Under Plan S (supported by the ANR and the European Commission), paying to publish in a hybrid journal is expressly forbidden – but authors may still publish in a hybrid journal as long as they do not pay any APCs and as long as they make the article freely available by submitting a version to an open archive*.

(6) Gold Open Access : a native open access journal. These are labelled 'full gold' when the journal is entirely open access (as opposed to hybrid journals). Some of these journals charge authors APCs (this is known as the author-payer model), but there are other funding models: funding from institutions or research organisations, freemium, crowdfunding, etc.

(7) Rights Retention Strategy : the rights retention strategy is a tool that benefits researchers by allowing them to retain sufficient rights over their scientific articles, thus enabling immediate open access, regardless of the dissemination model of the journal in which they are published" (Guide "Implementing the rights retention strategy for scientific publications," available on ouvrirlascience.fr).
In practice, this means applying an open license (such as Creative Commons*) to the manuscript submitted to the journal and to subsequent versions, up to the accepted manuscript for publication. This strategy is advocated by research funders such as the French National Research Agency (ANR) or the European Commission, which requires that publications resulting from funded projects be immediately available in open access. The rights retention strategy allows researchers to meet these obligations without having to pay publication fees.

*see glossary

Recommendations for publishing in OA

1

INDEXING YOUR PUBLICATIONS IN HAL AND DEPOSITING THE FULL TEXTS

The École Centrale de Lyon has chosen HAL as the institutional repository for its scientific publications, which are listed in the HAL portal of Centrale Lyon. Therefore, **it is necessary for researchers to systematically reference their publications there**, and it is strongly recommended **to deposit the full text (PDF)** of the publication, with a maximum embargo* of six months after the publication in the journal, in accordance with the Digital Republic Act*.

2

DO NOT PAY PUBLICATION FEES TO PUBLISH IN A HYBRID JOURNAL

It is strongly discouraged to pay publication fees for publishing in hybrid journals (those that publish both open access articles and subscription-based articles). These result in **double public spending. In such cases, it is preferable to publish under subscription and deposit the accepted author manuscript in HAL**.

3

DO NOT PAY PUBLICATION FEES BEFORE ENSURING THAT :

• It is not a **predatory journal** (see next page);
• Centrale Lyon does not have a subscription with the publisher that allows **exemption from publication fees** for its researchers (in 2024, such agreements exist with Elsevier, Wiley, and Cambridge University Press).

4

IF YOUR PROJECT IS FUNDED (ANR, HORIZON EUROPE), PRIORITIZE THE RETENTION RIGHTS STRATEGY

For projects requiring open access* dissemination immediately upon publication (such as ANR projects), it is recommended to a**pply the retention rights strategy**, which ensures the **immediate open access of the accepted author manuscript** (AAM) as soon as the article is published. Refer to the implementation guide for this strategy on ouvrirlascience.fr.

Do you have questions about open access publishing and/or depositing in HAL?

openaccess.doc@listes.ec-lyon.fr

see glossary

Beware of **predatory journals**!

Under the guise of open access, so-called predatory journals charge authors for publication but offer no peer review or real added value (no scientific committee, flawed or nonexistent review process, etc.).

HOW DOES IT WORK?

Sending emails to researchers
Predatory publishers spam researchers' inboxes with flattering messages, offering them to pay to publish in open access.

No peer review
The article is accepted quickly: the peer-review process is rushed or nonexistent. The sole objective is to get the researcher to pay.

Author-pays model
Predatory publishers exploit the author-pays model: they publish articles in open access in exchange for the payment of article processing charges (APCs).

Article published in open access*
As long as the author or their institution pays the publication fees, the article is published in open access on the pseudo-journal's website.

WHAT ARE THE CONSEQUENCES FOR THE RESEARCHER?

Wasting public money	Negative impact on the reputation of the researcher and his institution	Loss of authors' rights Inability to republish	Article not considered in evaluations	Risk of article retraction

HOW TO RECOGNIZE AND AVOID THEM?

• Fake impact factor

• Very short peer review and publication timeframes
• Unusually low APC fees
• Lack of transparency in the publication process

• The journal's geographical origin doesn't match its title

• Grammar and spelling errors

• Title mimics that of a real scientific journal with slight modifications

• Editorial board is hard to identify or appears in multiple journals. If real researchers are listed, they often are unaware of their alleged involvement!

American Journal of Scientific Knowledge
Impact Factor: 4.3
Comité éditorial
Processus de publication
Rapidité et prix faible garanti (ne nous demander pas comment) !!
Global publishing © India

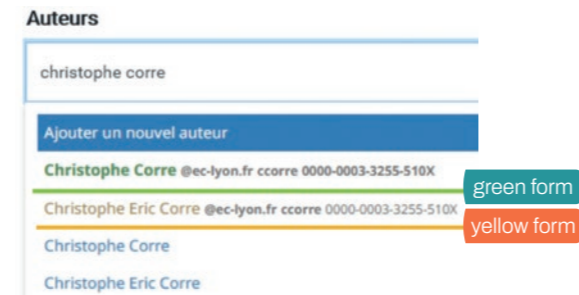*see glossary*

Depositing in **HAL**: **6 things to know**

1/ ENTER THE DOI*

If my document has a DOI, I enter it at the very beginning of the deposit to retrieve its metadata* and pre-fill the form!

Métadonnées, je renseigne mon dépôt

Extraction automatique

Chargez les métadonnées à partir d'un identifiant
Les informations associées à un identifiant permettent de compléter automatiquement votre dépôt.

DOI : | SAISIR LE DOI |

PUIS : → Récupérer les métadonnées

3/ AUTHOR FORMS

Always prefer the green author form: this is either a form validated and managed by the author (IDHAL = author identifier in HAL), or an identified form (through an email or ORCID number, for example).

- The green form corresponds here to an IDHAL with the identifier "ccorre".
- The yellow form corresponds to an author form linked to the IDHAL.

Auteurs

christophe corre

Ajouter un nouvel auteur

Christophe Corre @ec-lyon.fr ccorre 0000-0003-3255-510X `green form`

Christophe Eric Corre @ec-lyon.fr ccorre 0000-0003-3255-510X `yellow form`

Christophe Corre

Christophe Eric Corre

2/ DEPOSIT THE PDF

I upload the PDF of my document and set the accessibility conditions according to the table below:

Fichier(s) Je dépose mes fichiers

☁
Glissez votre document (max. 200M)
Parcourir

⤓ Uploader à partir d'un lien

If access via the publisher is…	I deposit in HAL (upon publication by the publisher)…	And give access to the PDF…
Not free (subscription-based)	The accepted author manuscript	6 months after first online publication by the publisher
Open (published in open access)	The publisher's version (version of record)	Immediately

☑ ANAND_VAGNON_ZOUAGHI_et_al_2021.PDF *(666.68 Ko)*   Origine fichier principal

| Les fichiers que je dépose ▾ | Document (pdf, jpg ▾ | immédiatement (20 ▾ | CC BY - Paternité ▾ |

immédiatement (2023-01-24)
dans 15 jours (2023-02-08)
dans 1 mois (2023-02-24)
dans 3 mois (2023-04-24)
dans 6 mois (2023-07-24)
dans 1 an (2024-01-24)
à partir d'une date spécifique
dans 2 ans (2025-01-24)

Fichiers auteur
Les fichiers que je dépose sont des fichiers produits par l' [les] auteur(s)

Fichiers éditeur
J'ai vérifié que cet éditeur fait partie de ceux qui autorisent le dépôt des fichiers éditeurs sur une archive ouverte
J'ai obtenu l'accord explicite de cet éditeur pour ce dépôt particulier
L'institution a financé les frais de publication pour cet article soit en libre accès

4/ AFFILIATIONS

In HAL, you should affiliate yourself and your co-authors with the smallest possible research unit (research team if it exists in HAL, or the laboratory), by selecting the corresponding green form. The publication is then automatically affiliated with all parent institutions.
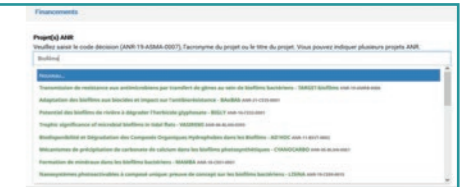
Cyril Buttay ✔
IdHAL : cyril-buttay
Fonction : Auteur ▾

Ampère
Ampère – AMPERE (2007 – …)
ECL – École Centrale de Lyon ; UCBL – Université Claude Bernard Lyon 1 ; INSA Lyon – Institut National des Sciences Appliquées de Lyon ; CNRS – Centre National de la Recherche Scientifique ; LABISEN ; INRAE – Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement ; USC1407 ;

Oussim Agri
Fonction : Auteur ▾

Ampère, Département Bioingénierie - Bioing
AMPERE – Ampère ;

Ampère, Département Energie Electrique - EE
AMPERE – Ampère ;

Ajouter une liste d'auteurs   Ajouter les auteurs d'une structure

In this example, the smallest research unit refers to the department. Affiliation level by laboratory:

AMPERE: department
ICJ: research team
INL: research team
LIRIS: research team
LMFA: laboratory
LTDS: laboratory

Make sure to affiliate all your co-authors so that the publication is correctly attributed to all research organizations and their parent institutions.

5/ FUNDING BODIES

If applicable, be sure to indicate the acronym of your ANR or European project. Enter the name or code of your project, and select it from the drop-down list.

6/ CREATE YOUR IDHAL

Choose your IDHAL identifier and link other identifiers to it.

Access the list of publications not yet linked to your IDHAL but attached to one of the author forms selected in step 2. You can add them to your IDHAL.

1 2 3
Configurer mon IDHAL | Mes formes | Mes publications

Forme préférée
★ Nicolas Jardin
N. Jardin
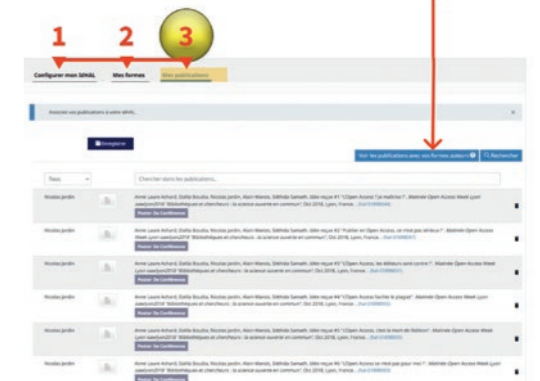Ajouter une forme :
N. Jardin
Enregistrer

Specify the form you wish to prioritize (the one that will appear with your IDHAL).

Search for the various forms of your name that may exist in HAL. For example, forms like:
• FirstName LastName
• FN. LastName
• FN.LastName…

View the list of publications currently linked to your IDHAL.

More information on depositing in HAL is available on the library website.

*see glossary

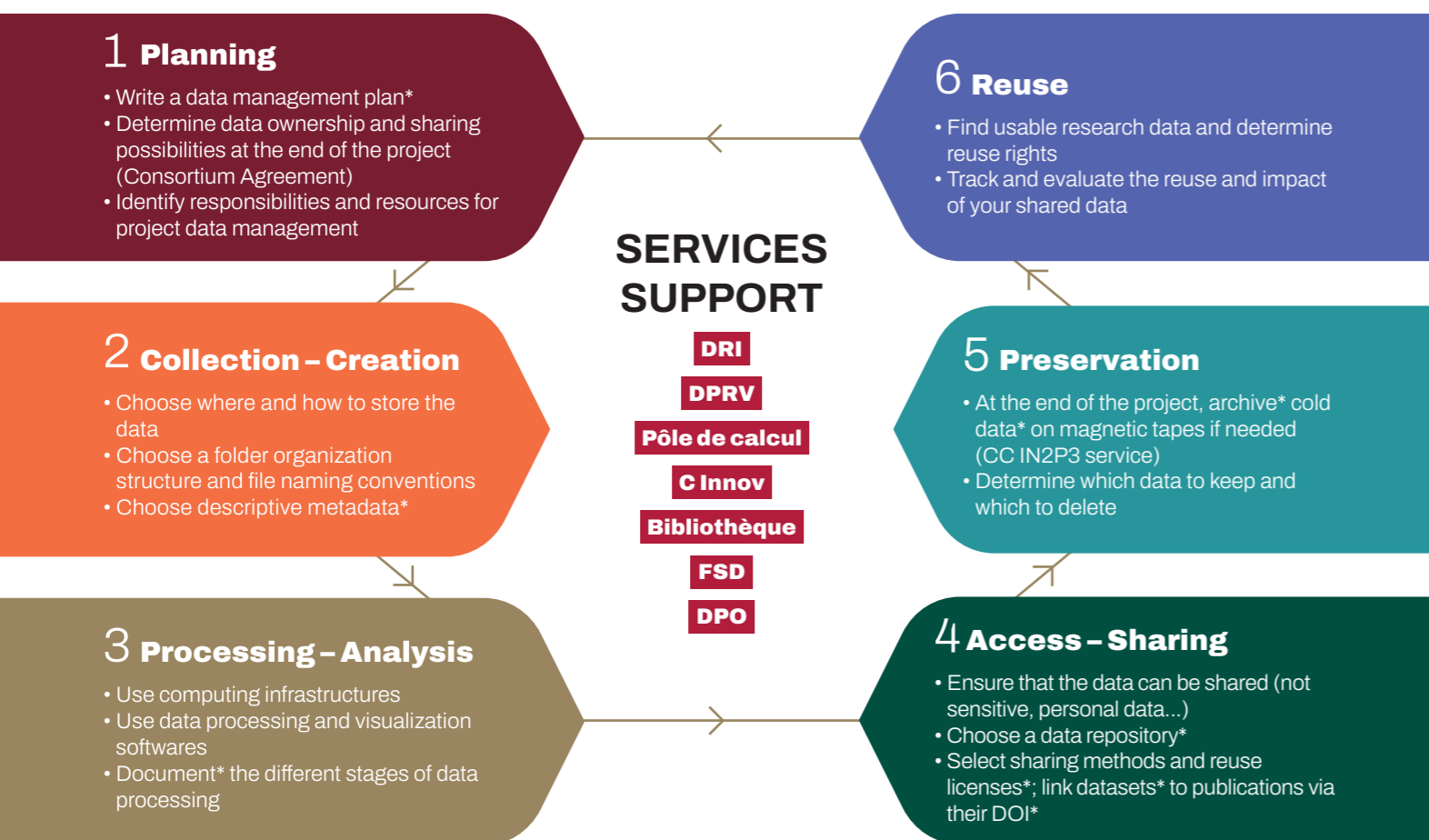*see glossary

Managing and **opening** data

FIRSTLY, WHAT IS 'RESEARCH DATA'?

The OECD defines research data as 'factual records (numerical scores, textual records, images and sounds) used as primary sources for scientific research, and that are commonly accepted in the scientific community as necessary to validate research findings'.
EXAMPLES: experimental findings, measurements, statistical data, survey results, interview recordings, images, software source code, etc.

Good research data management, and making it open when possible, offers several benefits:

• Avoid data loss by ensuring secure storage* and archiving* at the end of the project
• Avoid generating non-reusable data due to poor or non-existent documentation*
• Ensure the reproducibility of research by allowing validation of results
• Increase the visibility of the researcher's work by publishing a dataset* with a DOI*, linked to the publication
• Initiate collaborations with other researchers and laboratories
• Optimize the use of public funds by avoiding redundant data production

1 Planning
• Write a data management plan*
• Determine data ownership and sharing possibilities at the end of the project (Consortium Agreement)
• Identify responsibilities and resources for project data management

2 Collection – Creation
• Choose where and how to store the data
• Choose a folder organization structure and file naming conventions
• Choose descriptive metadata*

3 Processing – Analysis
• Use computing infrastructures
• Use data processing and visualization softwares
• Document* the different stages of data processing

SERVICES SUPPORT
DRI
DPRV
Pôle de calcul
C Innov
Bibliothèque
FSD
DPO

6 Reuse
• Find usable research data and determine reuse rights
• Track and evaluate the reuse and impact of your shared data

5 Preservation
• At the end of the project, archive* cold data* on magnetic tapes if needed (CC IN2P3 service)
• Determine which data to keep and which to delete

4 Access – Sharing
• Ensure that the data can be shared (not sensitive, personal data...)
• Choose a data repository*
• Select sharing methods and reuse licenses*; link datasets* to publications via their DOI*

Data management encompasses a set of best practices throughout the data life cycle. Several stakeholders at Centrale Lyon support researchers at these different stages.

*see glossary

THE DATA MANAGEMENT PLAN (DMP): A VITAL TOOL

A **DMP*** is a document that describes how the data will be managed **during and after the research project**. It is a **required** deliverable for all **Horizon 2020** and **ANR** projects.
To help you write your DMP, **templates** are available from the funding organisations and there are contact people you can turn to for help (see p.18).

No matter what model you use, the DMP is divided into sections and must answer the following questions:

RESPONSIBILITIES — Who will manage the data? Who owns the data? What resources are being allocated to data management?

COLLECTION — What kinds of data are collected? What form does the data take? How much is produced? What equipment/software is being used?

METADATA — What metadata* and documentation* will accompany the data to make them comprehensible and reusable?

STORAGE — How will the data be stored during the project and archived afterward? How will the files be organised (folder structure, naming conventions, etc.)?(arborescence, convention de nommage...) ?

SHARING

V0 -> V1 -> V2... The DMP* is an evolving document that must be updated throughout the project

OPENING DATA

The DMP* must state exactly which data will be made open and which data will remain closed (and, in the latter case, why that is).

WHAT ?
At minimum, the data and associated metadata* **needed to validate the findings presented in the publications** must be made open. Other data may also be made open, according to the conditions listed in the DMP*.

WHEN ?
Specific regulations, contractual clauses in the case of public-private partnership research, or even valorization opportunities (such as filing a patent or a software license agreement) may require not opening the data, or opening them after an embargo* period.

WHERE ?
Otherwise, you can deposit your datasets* in the Centrale Lyon space on the national repository* research.data.gouv.
Codes can be deposited in Centrale Lyon's Gitlab and opened to be harvested by Software Heritage. They can also be referenced in HAL.

HOW ?
▶ Add all useful documentation* and metadata* (title, date, format, etc.) so that your data may be understood and reused.
▶ Apply an open licence* establishing how your data may be reused (for instance, a Creative Commons* CC-BY licence) and manage access rights if needed.
▶ Designate a DOI* for your datasets* (recherche.data.gouv does this automation).

*see glossary

Opening your data: yes, but...

A researcher asking which data they can or must open, and which data they must keep closed, will likely be told that data should be "as open as possible, as closed as necessary." Sure, but what does that actually mean in practice?

WHAT THE FRENCH LAW SAYS

Data produced as part of research funded at least half by public funds is, by default, subject to principles of openness and free reuse, unless exceptions apply. These "exceptions" indicate the need to check, before any form of sharing, whether or not a "specific right" exists that would either require or prohibit the dissemination of data. When these data are produced as part of collaborative projects involving both public and private funding, the sharing terms are detailed in the contractual clauses agreed upon by the research partners. These must, of course, comply with fundamental principles enshrined in the relevant laws (access to environmental information, respect for personal data*, etc.).

QUESTIONS TO ASK YOURSELF

Does an exception to openness and free reuse apply? For example :

• Data whose openness would compromise national defense, state security, public safety, or the safety of individuals...

• Data communicable only to the concerned party: privacy, medical confidentiality, business secrets for private sector companies...

• Data protected by specific regulations, such as: personal data* that has not been anonymized or shared without the consent of the individuals concerned; data covered by intellectual property rights held by third parties...

• Data produced by laboratories in restricted zones (ZRR): these are not automatically excluded from the principle of openness by default but require consulting with authorized personnel (such as the defense security officer) to determine any potential dissemination restrictions.

BEST PRACTICES TO ADOPT

Ask these legal questions about data ownership and sharing from the start of the project to formalize them in contracts (consortium agreement, partnership contract, etc.) and reach out to support services:

• Research Partnerships and Valorization Department (RPI) for national contracts, regional projects, Carnot projects, UdL projects, European projects and industrial property matters.

• Centrale Innovation for industrial partnerships and some European projects.

• Security and Defense Officer for sensitive data from restricted zones*.

• DPO (Data Protection Officer) for personal data*.

The school supports you!

Do you want/need to...

Write a data management plan*?

• Introduction to the principles, objectives, and expectations of a DMP
• One-on-one meetings for DMP completion support
• Presentation of DMP Opidor, a tool to help with DMP writing and which allows displaying Centrale Lyon's recommendations.
• Review of your completed DMP

Store and back up your hot/active data*?

• Provision of centralized storage* spaces during the research project
• Guidance on best practices for storage* and backup* to prevent data loss

Archive your cold data*?

• Collaboration with IN2P3 for tape archiving* of inactive data at the end of the project

Make your data reusable?

• Support for best practices in data organization and documentation (choosing metadata*, file naming conventions, data dictionaries, etc.) to produce FAIR-compliant data.

Share and valorize your data?

• Legal support to determine which data can—or cannot—be shared and under what conditions
• Access to a dedicated Centrale Lyon space in the recherche.data.gouv repository; support for data deposit and curation before publishing the data
• Support for best practices in data dissemination and valorization: indexing, assigning DOI*, writing data papers*, etc.

One contact email for all Centrale Lyon research data support services:

donnees.recherche@listes.ec-lyon.fr

Funder and evaluator requirements

HORIZON EUROPE

The European research and innovation program Horizon Europe requires to deposit all publications resulting from projects funded by the European Commission in an open archive. The goal is to provide online access that is open and free to scientific information obtained within the framework of a European project, and that is reusable by all.

Moreover, it is also essential to make research data generated in these projects freely accessible and reusable online. To achieve this, a data management plan must be established at the beginning of the project and updated thereafter; this plan is considered a mandatory deliverable of the project.

The costs associated with these two obligations are eligible for European funding, and it is necessary to account for them in the project's budget.

If these open publication and/or open data access obligations are not met, the recipient of European funds may face financial penalties, meaning they could be required to repay all or part of the grant received.

cf glossaire

ANR AND ADEME

In accordance with the financial regulations of the ANR (French National Research Agency) and ADEME (French Environment and Energy Management Agency), partners in a research project must commit to:
• Depositing the scientific publications (full text) resulting from the research, development, or innovation project in an open archive, either directly in HAL or through a local institutional archive, in accordance with Article 30 of the Digital Republic Act;
• Providing a first data management plan within 6 months of the project's start, which will be updated according to the terms communicated in the Specific Conditions and/or the Financial Regulations of these funders.

EVALUATING ORGANISATIONS

When conducting evaluations, some organisations only count publications from open archives.

For instance, when evaluating the activities of its researchers, CNRS now only counts publications that are listed in HAL and provide access to the full text of the publication.

Since 2023, HCERES (High Council for Evaluation of Research and Higher Education) has made available to laboratories a tool for the automatic extraction of references from HAL. Proper reporting of publications in HAL thus ensures the completeness and quality of the provided publication lists.

Useful links

INSTITUTIONAL WEBSITES:

Open Science Committee website: www.ouvrirlascience.fr/home/

CNRS website on open science: www.science-ouverte.cnrs.fr/en/

Couperin (library consortium) website on open science: scienceouverte.couperin.org

French Barometer of Open Science*: https://frenchopensciencemonitor.esr.gouv.fr

Services for Researchers section on the Centrale Lyon library website: https://bibliotheque.ec-lyon.fr

HAL Centrale Lyon portal: https://ec-lyon.hal.science/

Centrale Lyon space on the research.data.gouv repository: https://entrepot.recherche.data.gouv.fr/dataverse/ec-lyon

OPEN SCIENCE STRATEGIES/POLICIES:

National Plan for Open Science 2021-2024: www.ouvrirlascience.fr/national-plan-for-open-science-4th-july-2018/

CNRS roadmap for open science and CNRS research data plan: www.science-ouverte.cnrs.fr/en/

CNRS recommendations in favor of open science: www.science-ouverte.cnrs.fr/en/the-cnrs-recommendations/

Open science roadmaps and organizational chart of Centrale Lyon: https://bibliotheque.ec-lyon.fr/services-la-recherche/la-science-ouverte-centrale-lyon/organigramme-et-feuilles-de-route

GUIDES AND TOOLS:

Passport for Open Science – Practical guide for PhD students: www.ouvrirlascience.fr/passport-for-open-science-a-practical-guide-for-phd-students/

Passport for Open Science – Guide "Enter the Debate": www.ouvrirlascience.fr/join-the-debate

MOOC "Open Science" from the Sorbonne University Alliance: www.fun-mooc.fr/en/courses/open-science/

Passport for Open Science – Video Capsules: www.ouvrirlascience.fr/series-passport-an-introduction-to-open-science/

PUBLICATIONS:

Guide "I Publish, What Are My Rights?": www.ouvrirlascience.fr/je-publie-quels-sont-mes-droits/

Guide "Implementing the Rights Retention Strategy for Scientific Publications": www.ouvrirlascience.fr/implementing-the-rights-retention-strategy-for-scientific-publications/

FAQ on the Digital Republic Act*: https://scienceouverte.couperin.org/category/faq/

Think Check Submit – tool to help identify "trusted" journals and publishers (as opposed to predatory publishers): https://thinkchecksubmit.org/

Directory of full open access journals: https://doaj.org/

DATA AND CODES:

Online training platform on research data management and sharing: https://doranum.fr/

DMP Opidor – platform to assist with data management plan writing: https://dmp.opidor.fr/

Passport for Open Science – Research Data Guide: www.ouvrirlascience.fr/open-science-research-data/

Passport for Open Science – Codes and Software Guide: www.ouvrirlascience.fr/source-code-and-software/

Sharing data linked to scientific publications: guide for researchers: www.ouvrirlascience.fr/partager-les-donnees-liees-aux-publications-scientifiques-guide-pour-les-chercheurs/

Guide "Opening Research Data – Legal Framework": www.ouvrirlascience.fr/ouverture-des-donnees-de-recherche-guide-danalyse-du-cadre-juridique-en-france-v2/

Flowchart from the Pasteur Institute related to legal questions concerning the dissemination of research data: https://pasteur.hal.science/pasteur-03587216

Fair-aware: self-assessment tool for best practices in making data FAIR: https://fairaware.dans.knaw.nl/

*see glossary

Glossary

Article 30 of the Digital Republic Act
This article facilitates the open archive* process for scientific publications by enabling researchers to submit the author accepted manuscript no more than 6 months after publication (12 months for SHS), even when the publisher has been granted exclusive rights.
In addition to the need to get approval from co-authors, the following two conditions must be met for the law to apply:
• the article must have been produced through research for which at least 50% of the funding was from public sources (this includes authors' salaries)
• the article must have been published in a journal that publishes at least one issue each year
If one of these conditions is not met, the law does not apply, and you must check your contract or the journal's policies (by going to the SHERPA/RoMEO* database) to understand your open archive submission rights.

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Licences that govern the rights to reuse and distribute a given work. There are 6 licences that enable authors to specify which rights are authorised (whether others have the right to modify the work, use it for commercial purposes, etc.), but in all cases, the Creative Commons licence permits the work to be shared as long as the author is credited. These licences are often attached to articles published in open access journals and may be attached to an article when it is submitted to an open archive*.

Data Documentation
All information accompanying a data set* that facilitates its comprehension and reuse by indicating, for instance, how the data were collected, what materials and methods were used, how they were processed and by whom, what variables were employed and how the folders have been structured.

Data Management Plan
A document with the purpose of summarising the description and changes to the data sets* for a research project and plan for the sharing, reuse and preservation of the data whilst complying to the fullest extent possible with the FAIR* principles (data must

be Findable, Accessible, Interoperable and Reusable). The DMP is divided into sections (collection, description, storage, sharing, etc.). DMP OPIDoR, a tool provided by the INIST, can be used to fill out a DMP using a preexisting template (the models from the Horizon Europe programme or the ANR, for instance).

Data Paper
A scientific article describing one or more data sets* produced during a given research process (collection methods, equipment used, potential for reuse, etc.) and providing access to these sets with a permanent link (DOI*) to the data repository* where they are stored. The aim of a data paper is to inform the scientific community about the availability of these data sets and facilitate their use.
Data papers are peer reviewed and published in 'traditional' scientific journals or in data journals that specialise in these kinds of articles.

Data Repository
An online service where researchers may submit, describe, search for and publish data sets*. Repositories may be disciplinespecific or general and may have an institutional, national or international scope. The re3data.org directory lists over 2,000 research data depositories. If a reputable discipline-specific repository exists for your field of research, we recommend using it. Alternatively, use a general-purpose repository like recherche.data.gouv, a sovereign solution for data sharing and open data.

Dataset
A set of data files that form an intellectual unit, along with the associated documentation* and metadata*.

Data Workshops/Datalyste
Label awarded by the MESRI (French Ministry of Higher Education, Research, and Innovation) to a structured and coordinated service offering that supports research teams in data management and sharing at a geographic site level. The aim is to promote collaboration between institutions and facilitate access to support services for researchers.

Diamond Open Access (sometimes referred to as Platinum Open Access)
Publication in an open access journal without having to pay publication fees. In this publication model, where neither the author nor the reader pays, the funding is covered by a sponsor: a university, a non-profit organization, etc. Journals or platforms may also be subsidized and/or generate revenue through a freemium model (basic service is free with paid complementary services).

DOAJ (Directory of Open Access Journals)
An online directory listing all full gold open access scientific journals. The DOAJ only lists peer-reviewed journals (with or without APCs) and excludes hybrid journals.

DOI (Digital Object Identifier)
A permanent ID for a digital resource. A unique DOI is assigned to every published article and is used as a unique identifier.

Embargo
The waiting period at the end of which the author may submit their article to an open archive*. The Digital Republic Act* limits this embargo to 6 months for STM (12 for SHS).

FAIR Principles (Findable, Accessible, Interoperable, Reusable)
Applied to research data, the FAIR principles provide a set of guidelines and best practices to facilitate the discoverability, accessibility, interoperability, and reusability of data. For example: assigning a DOI* to data, describing it with metadata* that meets standards, using controlled vocabularies, choosing a reuse license, etc.

Gold Open Access
Native open access publication in peer-reviewed scientific journals. Depending on the journal and its financial model, authors may be required to pay fees known as APCs.

Green Open Access
Publishing an open access article through self-archiving (author submission) on an open archive*. This submission is free for the author and the reader, who has free access to the content.

HAL Collection/Portal
Collections and portals are subsets of the HAL platform. A collection is made up of a set of submissions that have been selected based on criteria chosen by the individual in charge of the collection (collection manager). A collection may, for instance, include all the submissions from a certain laboratory or research team. A portal is made up of all the submissions from an institution (research organisation, university, institute, etc.). Unlike a collection, a portal has a unique domain name and its own submission interface that can be customised by the portal administrators.

Hot Data/Cold Data
Hot data refers to data that is constantly updated and requires easy and quick access (for example, during a research project). Cold data, in contrast, refers to data that is rarely consulted or used, but whose interest or production cost justifies its preservation (e.g., archived data at the end of a project).

Metadata
A set of structured information used to describe an information resource. Applied to research data, it is used to describe data sets* (title, author, date, keywords, DOI*, reuse rights, etc.) and facilitate management, research and reuse, especially through data repositories*.

Open Access
Open access to scientific literature means providing free, unimpeded, digital access to scientific articles without violating copyright restrictions. The term 'free access' is used when the content can be freely reused, adapted and redistributed.

Open Archive
A digital platform that allows free, unimpeded access to documents produced through scientific research (publications, data, software source codes, etc.), generally submitted by their author (known as selfarchiving). An open archive may cover one or more disciplines and may be institutional, national or international in scope. HAL is an open, multidisciplinary archive with a national

scope, administered by the CCSD (the CNRS centre for direct scientific communication).

Open Science Barometer
A set of indicators and associated graphs measuring the evolution of open science practices in France. Established by the MESRI, it is created at the national level and can be adapted at the level of an institution (e.g., the open science barometer of Centrale Lyon) or a laboratory.

Personal Data
Information that allows for the identification of a human being (natural person), either directly (name/surname) or indirectly (phone number). This data cannot be made open without prior anonymization or without the consent of the individual concerned.

Predatory Journal
A pseudo-scientific journal whose aim is to profit off of the 'authorpayer' model (see open access journal). Authors, usually solicited via email, are invited to submit articles, which are automatically accepted in return for the payment of an APC, no matter how little scientific value the submitted work may contain. The Stop Predatory Journals project maintains a list of suspected predatory journals and publishers, evaluated using 10 criteria.

Recherche.data.gouv
Recherche Data Gouv is a comprehensive national ecosystem for sharing and opening research data. It includes a national research data platform (the research.data.gouv repository) and a national federation of competence centers, with data workshops, thematic reference centers, and resource centers.

Restricted Regime Zone (ZRR)
The system of restricted regime zones constitutes the core of the French protection regime for scientific and technical potential (PPST). ZRRs, based on control of physical and virtual access to sensitive information, aim to protect access to strategic knowledge and expertise as well as sensitive technologies within public and private research institutions.

Reuse Licenses
Associated with a publication, a dataset*, software, or any other research product, a license allows the author to specify the reuse rights they grant to third-party users. Open licenses ensure that everyone has the right to use, share, and access the content with the necessary legal security for authors and reusers. Examples of licenses: Creative Commons*, Etalab (for data), ODbL (for databases), GNU (for software), etc.

SHERPA/RoMEO
A platform that compiles the open access policies of scientific publishers and journals (particularly with regard to submissions to open archives*): whether authors have the right to submit the postprint* version or the VoR*, required waiting periods, etc. In all cases, the Digital Republic Act* authorises the publishing of the postprint* version of the article after a waiting period of no more than 6 months following the publication in a journal (12 months for SHS). If your article is covered by the law, you can use SHERPA/RoMEO to check whether your publisher has less stringent terms (the ability to submit the publisher PDF* or shorter waiting periods).

Storage/Backup/Archiving
Storage refers to recording information on a physical medium such as a hard drive, USB stick, SD card, etc. The data is then located in one place. Backup involves copying data onto multiple storage mediums at different geographical locations to prevent loss. Archiving aims to ensure access, readability, and preservation of data for a period exceeding 30 years. It involves prior sorting: the scientific value of the data must be recognized by the community from which it originates.

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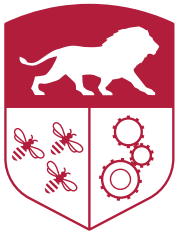webmaster-hal@liris.cnrs.fr

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