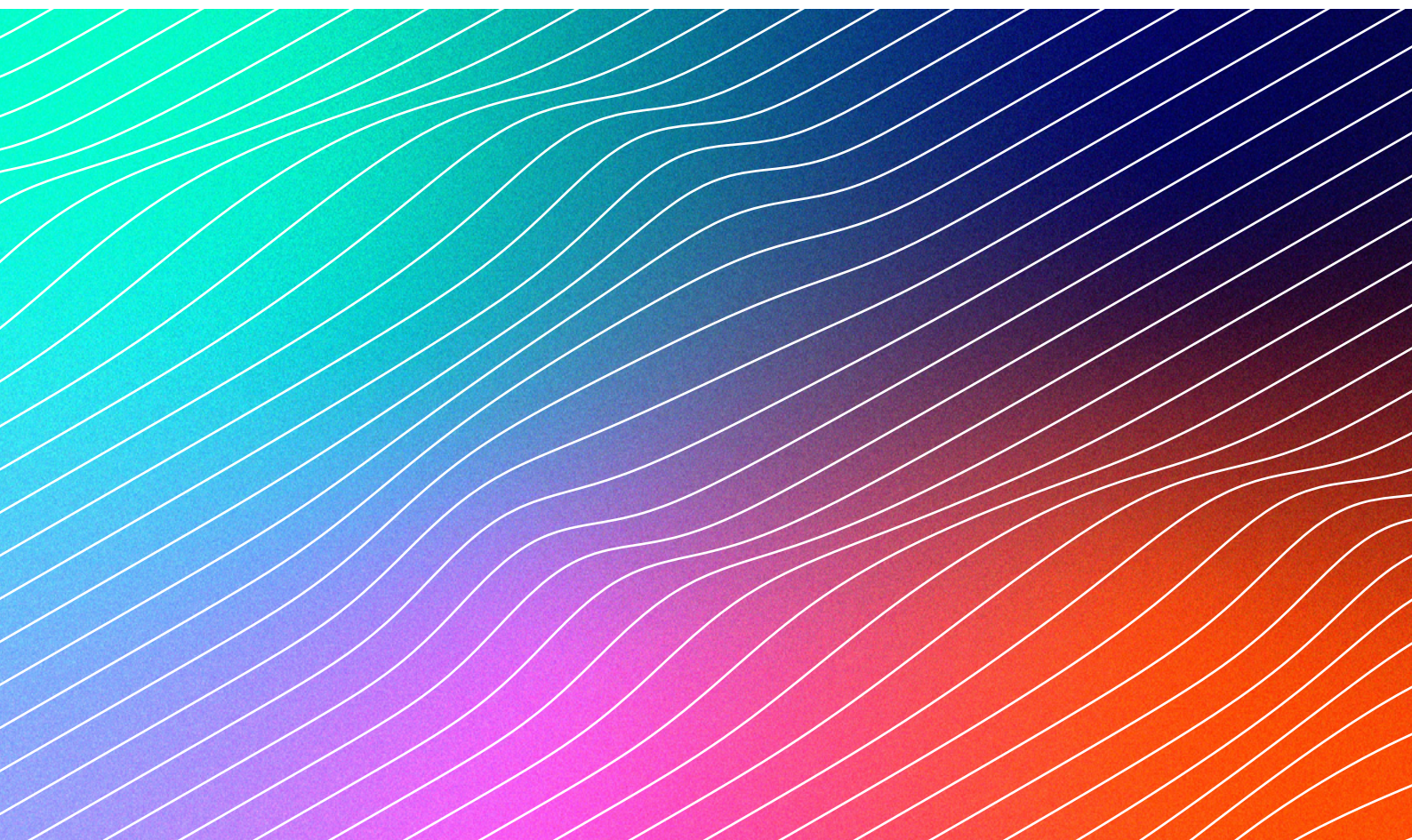


Activity Report 2024



Editorial

by Nathalie Fargier

The achievements of 2024 confirm the central role played by the CCSD and its HAL+ infrastructure within the open science ecosystem. Our work this year was guided by two major strategic priorities, both aimed at enhancing the impact and visibility of HAL, Episciences and Sciencesconf.

First, we focused on the operational implementation of the link between publications, data and source code. This initiative, developed in collaboration with our longstanding partners - recherche.data.gouv.fr, Software Heritage and Huma-Num - forms part of a holistic vision of scientific output. The aim is to create a structured ecosystem in which these various research objects are interconnected through cross-citations, thereby enhancing their accessibility, visibility and usability. Introduced in 2020 as part of the HALiance project, this strategic focus for the CCSD encompasses partnership policy, technological developments and service provision.

The year 2024 also saw growing recognition of the quality of our platforms, particularly HAL. We strengthened our transparency and our commitment to the core principles of open science, notably through the adoption of the Principles of Open Scholarly Infrastructures (POSI), membership in COPE and an assessment of our compliance with Plan S. In parallel, we continued our efforts to improve the reliability of our services, the quality of the data and the usability of our platforms. In this context, the launch of the HAL training hub reflects our commitment to providing more effective support to researchers and institutional HAL teams.

Moreover, 2024 marks a significant turning point for the CCSD with its relocation to the Lyon-Tech La Doua campus, within the premises of the University of Lyon 1. This new location brings us closer to our natural partners - research laboratories and library services - while also freeing up financial resources that can be reinvested in strategic projects.

This report reflects the CCSD team's enduring commitment. I would like to thank our supervisory bodies, the Ministry of Higher Education and Research (MESR), and our ever-growing network of partners, all of whom contribute to the continued success of HAL+. The figures for 2024 illustrate this success: over 160,000 new file deposits in HAL, bringing the total number of accessible documents to 1.4 million; 37 scholarly journals hosted by Episciences; and more than 2,500 academic events organised through Sciencesconf. These results strengthen our resolve to pursue our mission in service of the scientific community by promoting the increasingly open dissemination of knowledge.

Nathalie Fargier,
Director of CCSD

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The CCSD

Missions

The CCSD serves the scientific and academic communities and its mission is to facilitate all forms of direct scientific communication, give greater visibility to French research through the open dissemination of its results and ensure its sustainability. It is a major player in national and institutional policy in favour of open science, and in particular in the National Plans for Open Science (PNSO), whose objectives are to generalise open access to publications and structure and open data research.

The CCSD develops and administers the three platforms it has created for archiving, disseminating and promoting scientific publications and data :

- HAL, the multidisciplinary open archive for French research, and its derivative portals;
- Episciences, for journal publishing and editorial innovation
- Sciencesconf, dedicated to the organisation of scientific events.

These platforms enable researchers and their institutions to make their work visible, discoverable, usable and accessible in the long term, and thus

to regain control of the scientific production process.

The CCSD fulfils two other missions. The first is to contribute to the development and creation of the reference systems needed to identify French scientific output. The second is to participate in all French and international initiatives, particularly European, concerning open archives and open science, which help to improve the quality of the service provided to scientific communities and the visibility of their work.

Membership of the governance bodies

Steering committee

CNRS, INRAE, Inria, MESR, French Universities, director of the CCSD.

Orientation committee

Members of the Steering committee, plus five elected representatives from the Partners' Assembly, one representative from the Episciences platform and the chair of the ISC.

International scientific council (ISC)

11 experts in the field of scientific publishing and open archives.

Partners' Assembly

One representative from each institution with a HAL portal.

The HAL Partners' Assembly elects new representatives

As the mandates of the current representatives on the HAL Partners' Assembly were set to expire in 2024, members of the Assembly elected five new representatives to serve on the CCSD Steering Committee.

Elected for a three-year term, they act as intermediaries between users, higher education and research institutions and the CCSD Steering Committee, ensuring that the diverse needs and priorities of the academic community are properly represented.

Their role is to convey the expectations of the community, share best practices and contribute to discussions on the specific challenges faced by HAL's institutional partners and users.

The new representatives officially took up office during the annual session of the Partners' Assembly, held at the end of November.

Firm commitments for trusted platforms

The report submitted as part of HAL's application for CoreTrustSeal certification was sent for expert review at the end of January 2024 and had entered its second review phase by the end of the year. This certification process - undertaken as part of the HALiance project - attests that a data repository meets high standards of reliability, accessibility and long-term preservation. Achieving certification will mark a major milestone in the platform's international recognition.

The publication in October of the report *Update of the Study on the readiness of research data and literature repositories to facilitate compliance with the Open Science Horizon Europe MGA requirements* confirms that such recognition has now been attained at the European level. The report presents a study commissioned by the

Executive Agency of the European Research Council (ERCEA), at the request of the Scientific Council of the European Research Council (ERC). It analyses the compliance of 241 repositories with the requirements set out in the Horizon Europe Model Grant Agreement (MGA). According to the study, only HAL and one Austrian data repository meet all the mandatory and recommended criteria. Episciences' membership of the Committee on Publication Ethics (COPE) in December completes our policy of aligning with international standards.

A COAR seminar held in Lyon

In October, the CCSD had the pleasure of hosting a seminar organised by the Confederation of Open Access Repositories (COAR), dedicated to the Publish, Review, Curate (PRC) model of scientific publishing. The aim was to facilitate discussion on the measures needed to encourage the adoption of this model, which promotes the sharing of preprints and open peer review. The meeting formed part of the COAR Notify project.

Significant events in 2024



Training and educational resources on HAL : a new all-in-one tool

Officially launched in November, the HAL Formation site is a new platform entirely dedicated to the CCSD's training offer. This site provides users with a tool that enables them to follow self-paced training pathways. They have access to a range of specially developed content - whether to help them

get started with HAL or to support regular use of the platform. All resources are freely accessible. To register for training sessions or to track progress on the new platform, users simply need to create an account using their HAL login credentials.



Episciences gains international visibility with support from SCOSS

The Global Sustainability Coalition for Open Science Services (SCOSS) is a network of institutions from various countries committed to secure open, free-to-use service infrastructures that are essential to science. In December, SCOSS selected Episciences, recognising it as a mature model for overlay journals. This support provides Episciences with a framework and global visibility

within the open science community to help secure financial backing, following a crowdfunding-style approach.

Episciences has thus joined the "SCOSS family", alongside other major players such as arXiv, DOAJ, Software Heritage and ROR.

Linking publications, datasets and software : a shared objective for HAL and Episciences

Both platforms have introduced new features designed to help researchers better showcase, share and add value to the full spectrum of their work. These developments are based on interoperability with other data repositories, the use of persistent identifiers (DOIs or SWHIDs) and the implementation of common standards to define relationships between publications, datasets, and software.

For HAL, the management of relationships between a deposit and internal or external resources has been completely overhauled. For Episciences, a new system has been implemented to link published articles with datasets or software.

Whether on a HAL deposit or an Episciences journal article, both platforms display citations of associated resources to ensure their traceability and recognition. In some cases, the

resource itself is directly accessible, allowing users to view the original content without needing to perform additional searches. This approach promotes transparency, facilitates access to information, and contributes to the visibility and impact of scientific work.

Review the 2024 action plan

Progress on each action is shown by a points system :

- ● ● ● Action started
- ● ● ● Action in progress
- ● ● ● Action being finalised
- ● ● ● Action completed

✦ Achievements related to the action plan are marked with the symbol throughout the activity report.

Anchor the CCSD within the Open Science and knowledge ecosystem in a durable and exeplary way and assert its leadership

The CCSD needs to consolidate its role at the service of French public policy, working closely with the various scientific informa -tion infrastructures and research funding agencies. It must also strengthen its partnerships with the major players in Open Science in Europe and worldwide, assert its role and promote its platforms. This recognition relies, among other things, on the formalisation of its alignment with the Open Science criteria of excellence.

1. Continued listing of funders linked to publications

- ● ● ●

2. Listing of research platforms, equipment and instruments operated by research bodies and universities

- ● ● ●

3. Contracts between the Episciences platform and hosted journals

- ● ● ●

4. Consolidation of the compliance of CCSD platforms with the criteria for excellence in open science

- ● ● ●

Increase usage of HAL, Episciences and Sciencesconf

Improving the quality and relevance of the services provided to researchers and institutions is a fundamental lever. Emphasis is placed on simplifying existing procedures, adding new functionalities, reinforcing support, ensuring clear and transparent dissemination of information, and valuing the contributions of the various user communities..

5. DOI assignment

- ● ● ●

6. Evolution of the organisation of the moderation of deposits in HAL (process of technical, documentary and legal validation before the document is put online)

- ● ● ●

7. Functional enrichment of HAL

- ● ● ●

8. Functional enrichment of Episciences

- ● ● ●

9. Functional enrichment of Sciencesconf

- ● ● ●

10. Harmonisation of HAL, Episciences and Sciencesconf authentication web interfaces

- ● ● ●

11. New training offer for HAL user communities

- ● ● ●

12. Implementation of new HAL documentation

- ● ● ●

13. Strengthening the coordination of HAL communities

- ● ● ●

Ensure the sustainability of HAL, Episciences, Sciencesconf and their service offer

Maintaining access to the HAL, Episciences and Sciencesconf platforms and services depends on the convergence of various elements: an efficient governance model, the expertise of CCSD team members, a sustainable economic model based on diversified sources of funding, and open and secure technological choices.

14. Improvement of the security of infrastructure and hosted data

- ● ● ●

15. Sustainability of Episciences journal articles

- ● ● ●

16. New version of the HAL Portals Terms of service

- ● ● ●

Scientific open archive

Facilitating the discovery of datasets and software linked to a publication

HALiance

The redesign and implementation of the relationship management system was completed in 2024 and deployed in early 2025. Its aim is to harmonise the handling of relationships, whether internally, to link multiple HAL deposits or externally, to link a deposit with a resource archived in another repository, such as Nakala, recherche.data.gouv.fr and Software Heritage. It is based on a standardised vocabulary developed by DataCite to define the nature of the relationship, as well as the COAR resource type classification to specify the type of content.

In practice, both the deposit form and the "Link resources" feature have been updated. The citation of the associated

resource (image, dataset, software) is now displayed when viewing the deposit, and the export formats have been enhanced.

If the associated resource is hosted in HAL, Nakala or recherche.data.gouv.fr, data entry is simplified, as users can search by author name, title and other criteria. This also enhances discoverability: the resource can be viewed directly when the deposit is consulted.

As an integral part of the HALiance project, this development builds on work carried out under the EOSC-PILLAR project (2019–2022), developed in partnership with Huma-Num, and on the implementation of the COAR Notify protocol.

The deposit suggestion service

HALiance

Launched in December 2023, the deposit suggestion service introduces a new way of feeding content into HAL: it allows researchers to automatically import the full text of their publications already available in open access, either by adding the file to an existing record or by creating new deposits.

In its first year of use, 11,791 files were imported via this service, accounting for 7% of all deposits created in 2024. Publications in the life sciences and physics were the most represented. On average, each user imported 2.5 publications, with a record of 86 publications imported by a single author!

The service only offers publications under a Creative Commons licence, which necessarily makes it dependent on the presence of the licence in the metadata. It also relies on the Unpaywall application, which flags open access files. This sometimes leads to confusion during moderation checks, particularly when the suggested file is a publisher version still under copyright.

To promote and support uptake of this new service, tailored training materials were developed and made available (including a tutorial and practical guide). A survey conducted in autumn gathered feedback from over 3,000 researchers who completed it, with 44% reporting that they had already imported at least one of their publications using the suggestion service. The survey also aimed to identify areas for improvement: the handling of homonyms was identified as a top priority. One potential development involves expanding the scope of the suggestion service to include all publications, enabling researchers to simply upload their file.

1,440,377
documents

full-text online as 7 January 2025, of which

167,751

were deposited during 2024

Implementation of
the national license
agreement with
publisher Elsevier

3,839 deposits were added to the existing notices of articles published in 2021 via the Accepted Author Manuscripts (AAM) provided by Elsevier. A total of 22,495 PDFs have been imported.

HAL MONITOR, a new data visualisation Tool

In December, HAL launched a new consultation tool, HAL Monitor, designed to make exploring the contents of the archive more engaging through data visualisation. The interface simplifies the use of API queries to generate a set of indicators for a research institution, collection, portal or ANR/European project. HAL Monitor makes it easy to identify trends at a glance. Both visualisations and indicators can be downloaded for easy use.

Adopting best practice for Software preservation : a action program in partnership with Software Heritage

The partnership with Software Heritage was strengthened in 2024 through a programme of actions aimed at supporting institutions and their teams in adopting best practices for the preservation and dissemination of software

resources. The programme included outreach activities at the annual ADBU conference in October (with a shared CCSD-Software Heritage stand), as well as a Let's talk Open Science webinar in December.

Enhancing the visibility of funder data

HALiance

In 2024, several initiatives linked the development of HAL's funder registry with the open data goals of two funding agencies: ANSES and ADEME.

Both agencies received support for formatting the descriptive data for their projects, enabling them to deposit these datasets on data.gouv.fr and make them publicly accessible and usable by all.

To ensure their compatibility with HAL, the same process used for ANR data is applied, with adaptations to align with the funder registry data model. As a transitional measure, this requires the coexistence of two management systems: the existing auréHAL system for ANR projects and the new funder registry system for ANSES and ADEME projects. Two new metadata fields have been added to the deposit form, making it possible to add a project funded by either of these agencies.

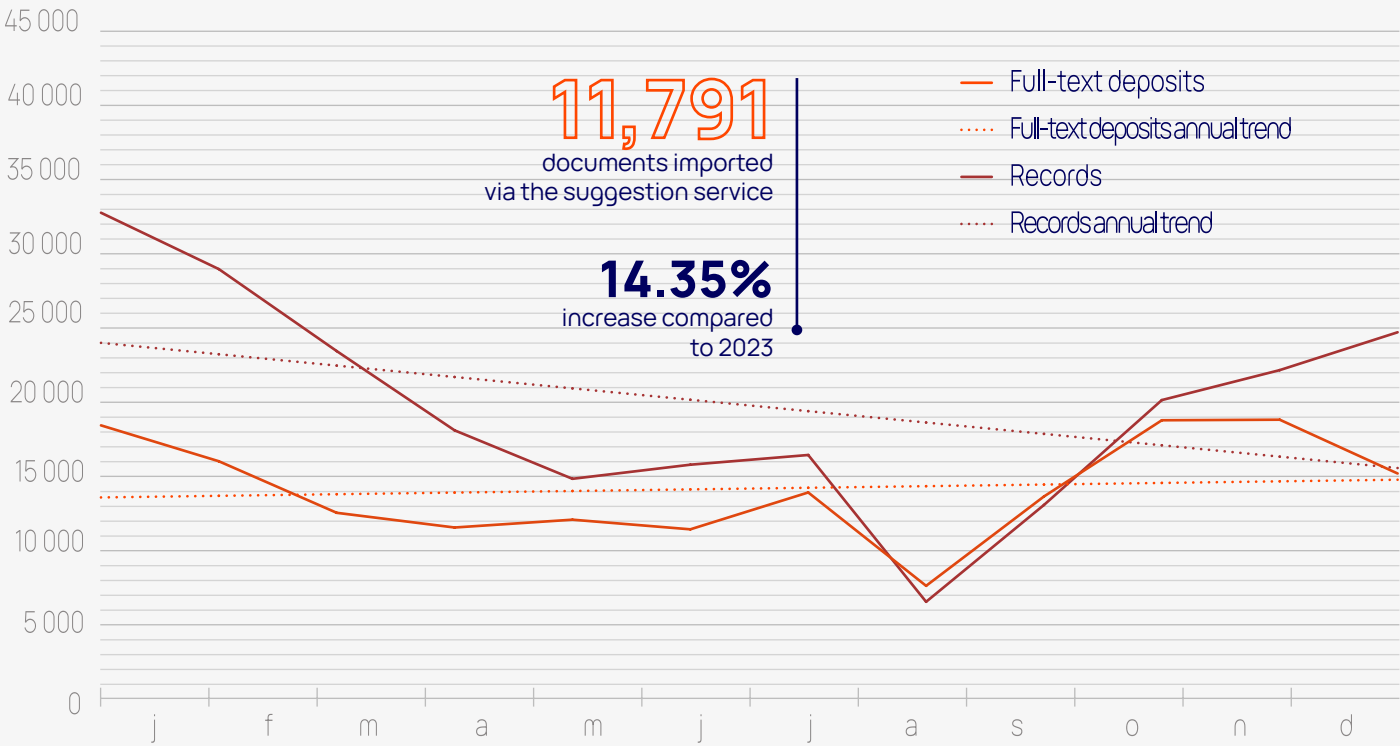
In parallel, the metadata extraction feature - which auto-fills the deposit form using information from a PDF file - has been enhanced to include ANR project data. This feature is part of WP3 of the HALiance project.

ESGBU Indicators

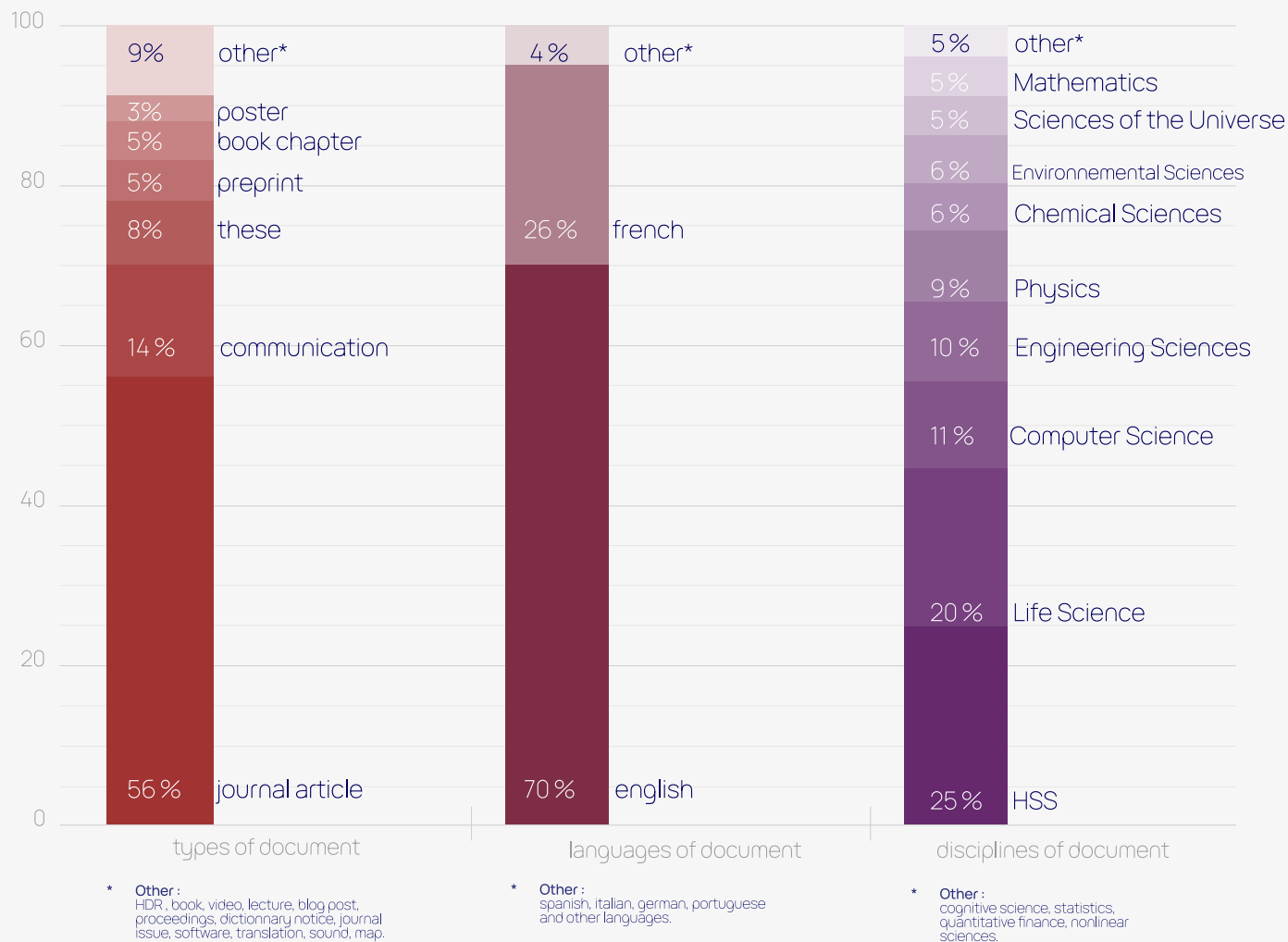
The administration dashboard for each portal has been enhanced with indicators required for the Statistical Survey of University Libraries and Documentation Services in Higher Education and Research (ESGBU). This simplifies the annual data collection process, which covers the number

of deposits on the portal - distinguishing between doctoral theses and HDR - the annual growth of the portal and the number of downloads. More comprehensive statistical indicators remain available through the Kibana application.

Number of full-text deposits and records per month in 2024



Breakdown of the full-text documents deposited in 2024 by type, by language and by scientific discipline



Improving interoperability with OpenAIRE

For an open archive such as HAL, interoperability means being able to interact with other systems, to share metadata and support the flow of information. To remain effective, this requires staying aligned with and adapting to changes in the systems it connects with. Implementing the latest version of the OpenAIRE guidelines supports this objective.

The metadata crosswalk table has therefore been updated and aligned with the OpenAIRE 4.0 specifications to ensure it can be effectively used. This helps improve the discoverability of publications deposited in HAL within the OpenAIRE ecosystem.

Data cleaning and curation

Though often invisible, data cleaning is essential to maintaining the health and manageability of the database. Such operations are carried out on a regular basis.

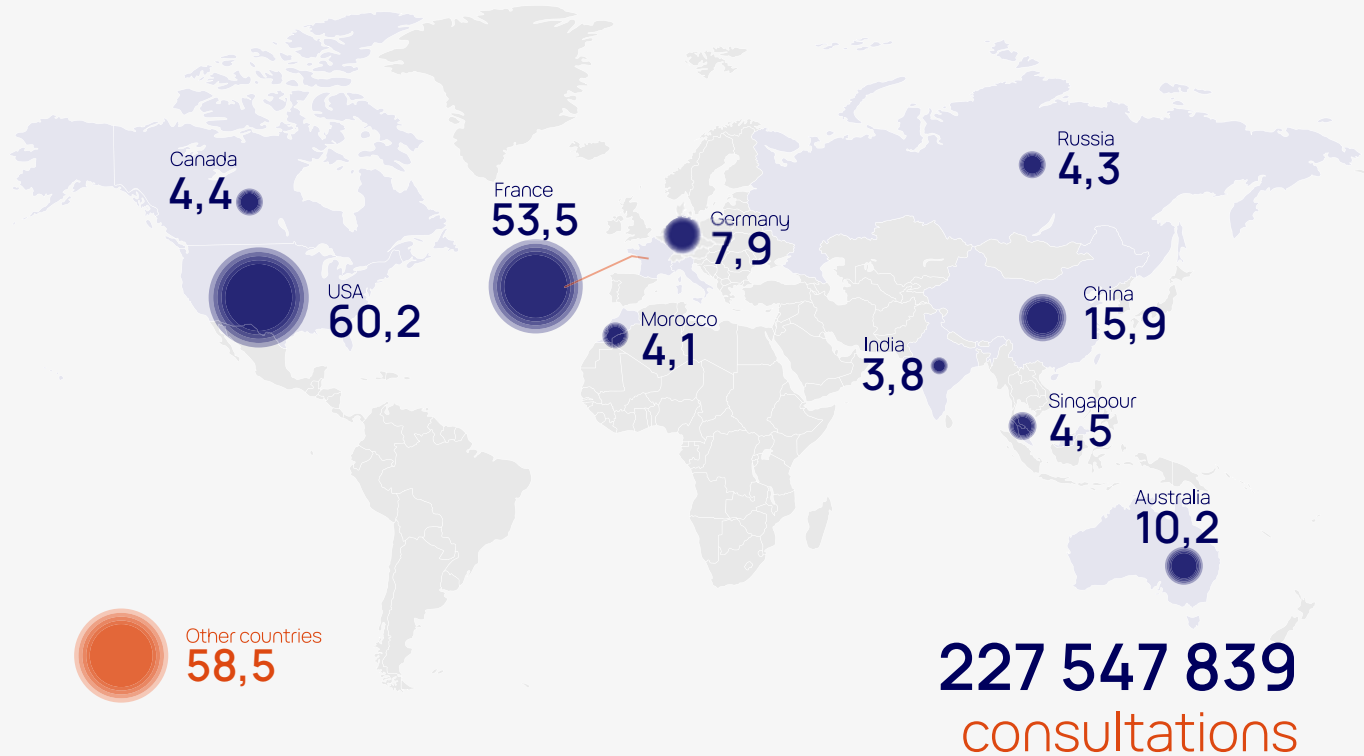
In 2024, key efforts focused on preparing the database for various projects: funder registry, migration of the University of Strasbourg’s open archive and identifier management for the new publication-data-software linking system. A metadata rationalisation initiative was also implemented: 40 metadata fields - mostly created during past migration processes but ultimately little or never used - were archived, reducing the overall volume of metadata requiring management. In addition, user requests for batch updates relating to research structures or author name formats were processed.

Ambassadors Program

In 2024, the HAL Ambassadors programme continued to expand, with the addition of five new members. As key partners, their expertise and close ties with scientific communities enable the co-design of services that are ever more closely aligned with user needs. In 2024, Ambassadors contributed to improving the self-training module on choosing a Creative Commons licence, developed recommendations for the evolution of the HALCV, and supported the finalisation of HAL Monitor.

The annual Ambassadors seminar, held in October, provided an opportunity to review the actions carried out and to define priorities for the coming year. Through an immersive role-playing exercise, participants were able to refine their arguments in support of HAL and identify the obstacles that need to be addressed to encourage broader adoption of open science practices. They also form a network available to the scientific community, sharing their expertise to support the adoption of HAL and the broader uptake of open science practices.

The ten countries with the highest number of document consultations (record consultations and document downloads) in 2024 (in millions)



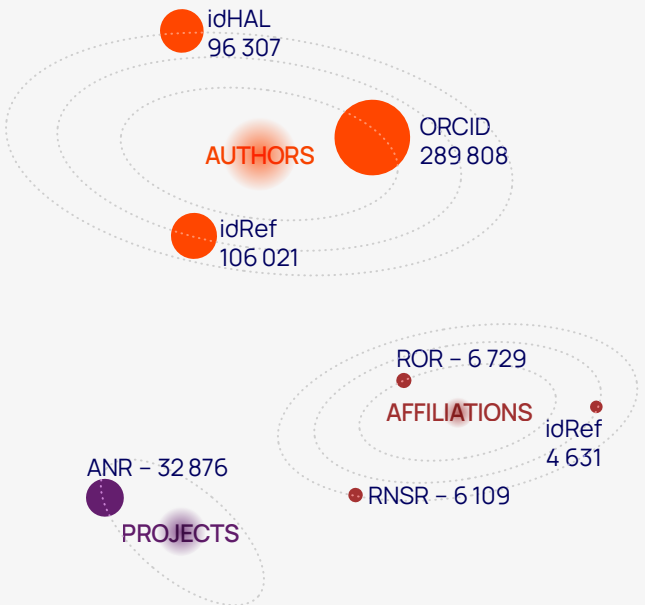
COUNTER Compliant
designed by freepik

Focus on the collections

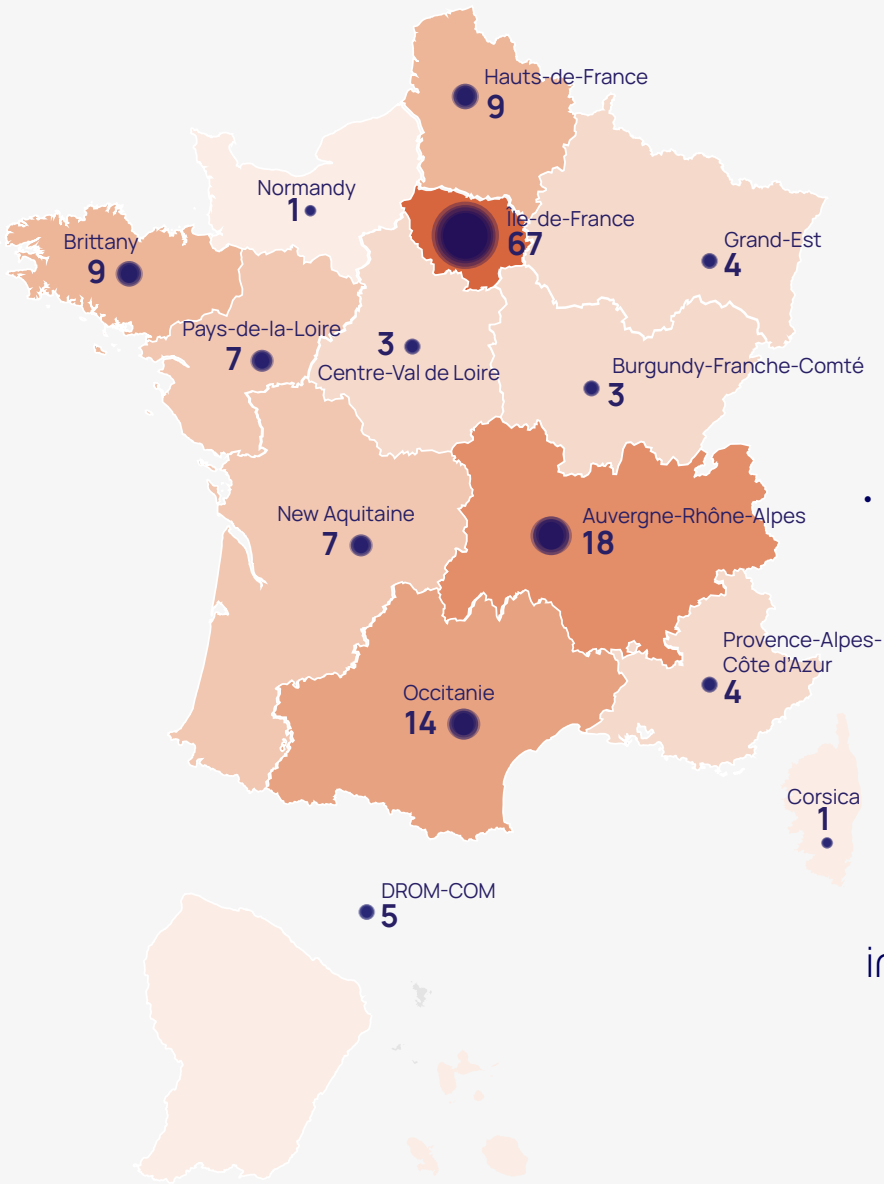
Breakdown of collections by category



Focus on identifiers



Institutional portals



152
Institutional
portals

including 4 created in 2024

- Université Catholique de Lyon
- ICN Business School
- École Nationale Supérieure de Mécanique et d'Aérotechnique (ENSMA)
- Académie des sciences

38
Institutions
are handling moderation

including 8 new ones in 2024

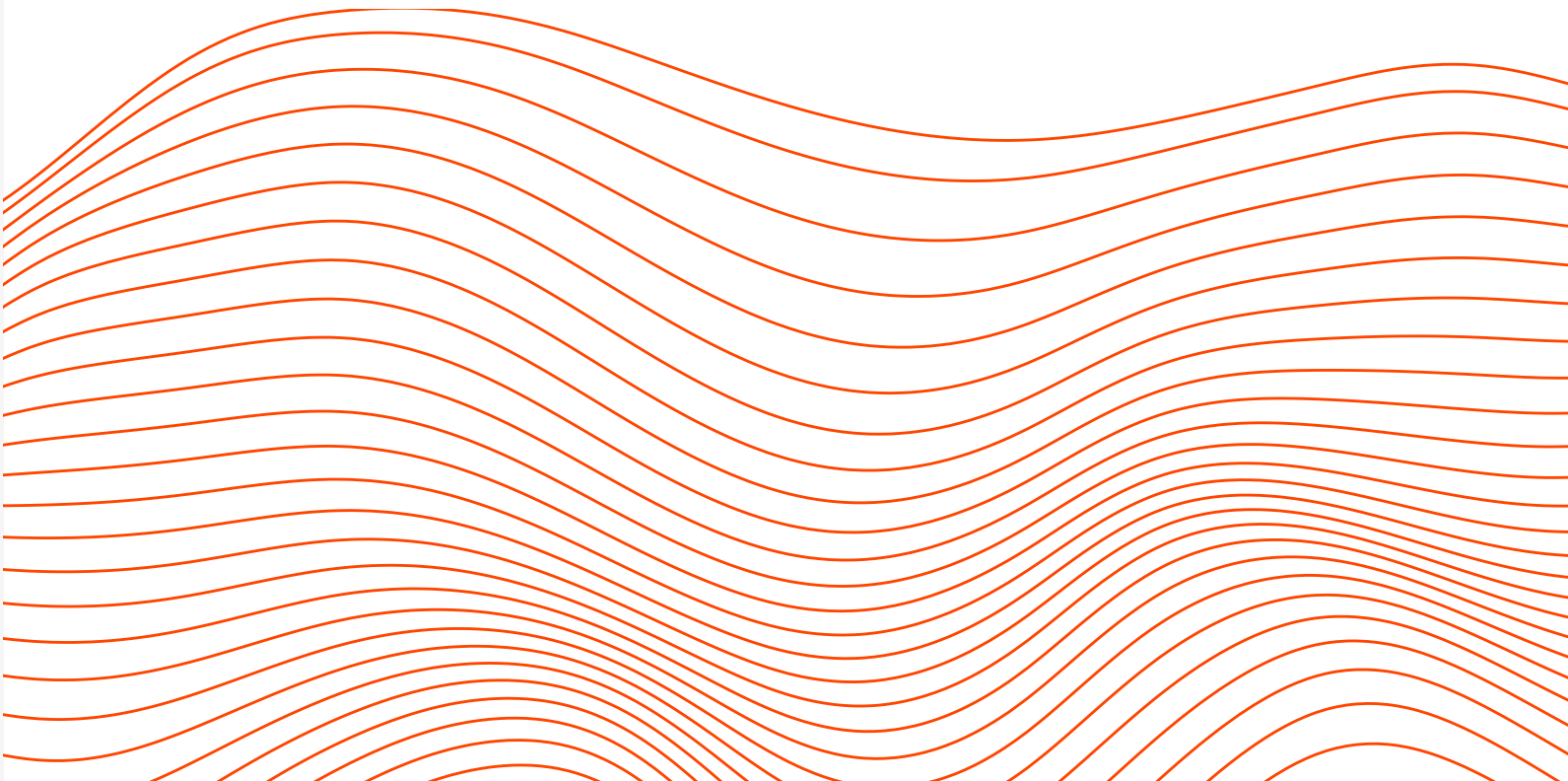
Activities of the HAL Partners' Assembly

The year 2024 marked a new milestone in the consolidation of the HAL Partners' Assembly. Building on the foundations laid in 2023, the actions carried out aimed to strengthen collaboration between the CCSD and its partners, encourage the sharing of experiences and advance discussions on the key issues of open science.

The annual session - a true highlight of the year - brought together nearly 120 participants to discuss the theme of artificial intelligence, scientific publications and open science, underlining the growing importance of these topics in today's research landscape. These discussions fed into a broader collective reflection on the use of AI and the future evolution of HAL and its services.

In parallel, the "workshop" webinars provided a dedicated space for partners to share best practices and experiences in open science. A total of six feedback sessions were held, highlighting local and institutional initiatives that contribute to both open science and the development of HAL.

Finally, to ensure the long-term evolution of the HAL Portals offering, the CCSD launched a review of the General Terms of Use in 2024. This process was conducted in close collaboration with the CNRS, seven partner institutions and the network of DPOs in the higher education and research sector. This collective effort aims to align the platform's terms of use with legislative developments, particularly regarding data protection (GDPR), and to establish a governance framework for the technical validation of deposits in HAL.



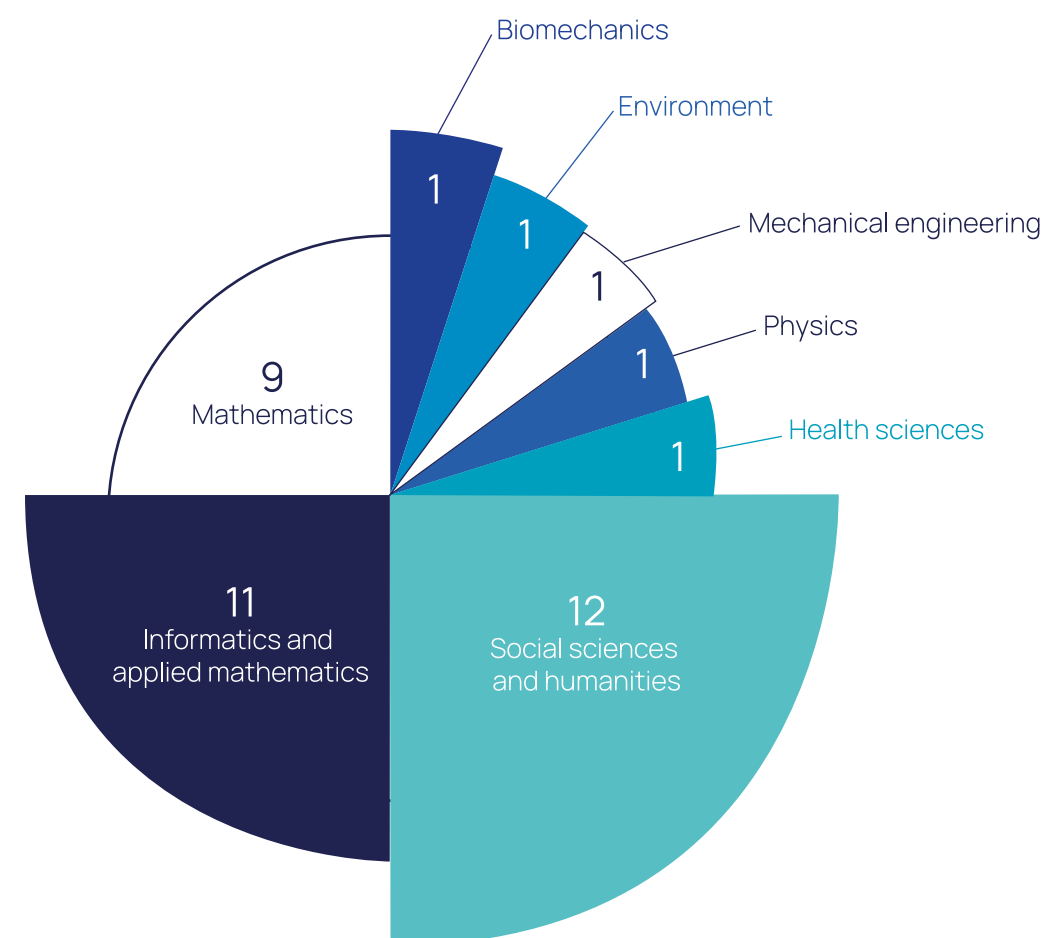
Open access scientific journals

37 journals

which 7 were put online en 2024 :

- Annals of Formalized Mathematics ;
- Compositionality ;
- Data & Corpus : la revue des données en SHS ;
- Journal of Data- and Knowledge-integrated Simulation Science ;
- Multidisciplinary Biomechanics Journal ;
- Revue africaine de santé et de production animale ;
- Transformations : a dariah Journal.

Breakdown of the journals by scientific field



Supporting journals in the editorial production phase

The Édisciences project, funded by the National Open Science Fund (FNSO), seeks to address the needs of journals during the editorial production phase by offering solutions for copy-editing (phase involving correction, formatting and standardisation of articles following acceptance).

The 12-month project is part of a broader strategy to pool editorial tools and workflows. Three journals are involved in the project: Recherches en didactique des mathématiques, Cahiers scientifiques du transport and the Journal of Theoretical, Computational and Applied Mechanics. The project includes the recruitment of an editor for six months.

The aim of this support is to professionalise and empower journal teams. It has resulted in the development of practical guides, including clear workflows for the copy-editing phase and checklists to structure both corrections and layout. The final step involves connecting journal teams with external service providers who will take over this work in the longer term.

The creation of InDesign templates compatible with the Métopes editorial workflow - a suite of tools used by the public-sector academic publishing network to simplify and optimise the layout process - completes the initiative.

Work will continue with the LaTeX format in 2025.

The nepHAL+ projects

Also funded by the National Open Science Fund (FNSO), the nepHAL+ project aims to develop an autonomous and innovative submission and evaluation module to enable peer review of research preprints, datasets and software. The module will also support the publication of open peer review reports. In 2024, during the initial months of the project, efforts focused on modularising and modernising the Episciences platform codebase. In 2025, work will continue with the development of the peer review module and a study of open peer review functionalities.

Diversifying funding sources

In addition to funding from its supervisory bodies and project-based grants, the CCSD has chosen to open up funding for Episciences to both national and international institutions. The aim is to strengthen the platform so that it can support new journals and continue developing innovative tools.

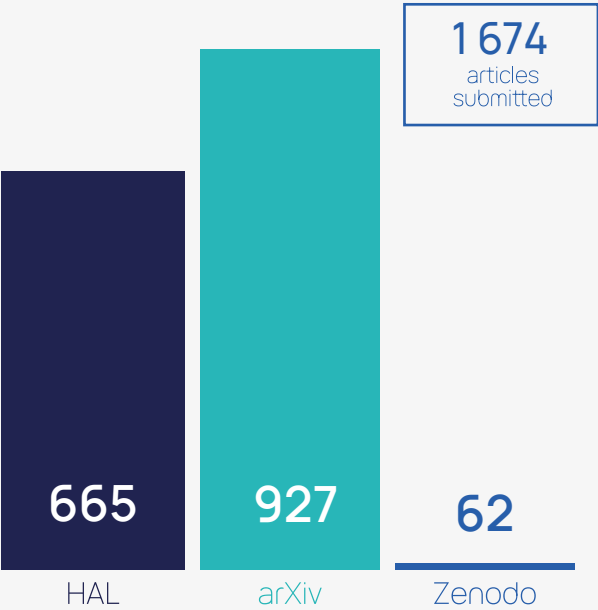
At the national level, the Couperin consortium included Episciences in its 2024 support campaign for open science initiatives. The consortium is responsible for collecting contributions from member institutions and redistributing the funds to the infrastructures. Sixteen institutions contributed as part of this campaign.

At the international level, Episciences was selected in December by the Global Sustainability Coalition for Open Science Services (SCOSS), a network of institutions from different countries committed to secure open service infrastructures by providing visibility and support to selected infrastructures. Since the end of the year, the platform has also been listed in the Infra Finder catalogue - a tool designed to help users discover and assess open infrastructure services suited to their needs.

Number of articles submitted and published in the journals



Origin of articles submitted to the journals (in 2024)



The remaining 20 articles are interim versions (updated documents), but are not from an archive.

◆ Membership in COPE

Episciences is now a member of the Committee on Publication Ethics (COPE). This international organisation sets out best practices in publication ethics and supports stakeholders across the scholarly publishing ecosystem in implementing them.

COPE provides clear guidelines on good publishing practices and article management. By joining COPE, a publisher, journal or platform such as Episciences demonstrates its commitment to ensuring that published content adheres to high standards of scientific integrity.

Specifying relationships between articles, datasets and Software

Existing features allowing links between articles, datasets and source code have been enhanced with the ability to specify the type of relationship. For example, a publication on Episciences can be linked to an open peer review report deposited in HAL using the relationship type "Has Review", or to a dataset with the type "Is supplemented by". These new relationship types are included in the metadata associated with the article's DOI.

Interoperability with zbMATH database

Mathematics journals are indexed in the zbMATH bibliographic database, which significantly enhances their visibility within the discipline. Episciences uses the zbMATH APIs to enrich its articles and enhance their discoverability by integrating the Mathematics Subject Classification (MSC) applied on the database into each article page. A total of 1,800 articles have been enriched in this way.

Visibility on this key resource also gives published articles the opportunity to be reviewed by zbMATH contributors via the dedicated review service available on the platform. The resource linking system implemented in Episciences also supports linking an article to a review published on zbMATH, and this link is displayed directly on the article page. To date, 240 articles include a zbMATH Open review.

Redesign of journal public websites

A project to modernise and harmonise the public interfaces of journal websites was launched in collaboration with the agency Atelier Universel. This project serves several strategic objectives: improving site readability and usability, ensuring a consistent visual identity across journals and enhancing their appeal to readers and researchers. It also aims to meet the technical and editorial standards required by major academic indexing services, such as the Directory of Open Access Journals (DOAJ).

In addition, to enhance the user experience and highlight scientific content, the redesign includes the integration of a new feature: the option to add a graphical abstract. This allows authors to visually represent the main findings of their work, thereby improving comprehension and supporting wider dissemination of their research.

The new interfaces will be rolled out progressively in 2025.

Communication materials for journals

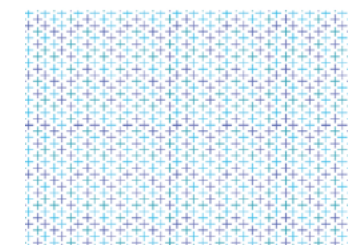
To support journals in their communication, a range of promotional materials has been developed. Adaptable to various formats (flyers, business cards, postcards), these materials follow and align with the CCSD's graphic identity.

This support is part of a broader reflection on the communication needs of journals, carried out by a Lyon-based working group made up of staff from Prairial, ENS Éditions, Enssib Press and joined by the CCSD.

Episciences



Le partenariat
de soin avec
le patient :
analyses



Management of scientific conferences

Rapport d'activité – 2024

2,539
conferences

online as of 31 December, 2024

111,780
registrations

for conferences
created in Sciencesconf in 2024

84,518
communications

69,043 abstracts and **15,475** full-texts

In 2023, 75,927 papers were submitted to
Sciencesconf, an increase of **16%**.

✦ Streamlining the transfer of conference papers to HAL :
opt-in at the time of submission



The submission form for conference papers (full text) has been updated to allow authors to opt for automatic transfer of their paper to HAL. The transfer takes place at the end of the conference.

This feature is a deposit option configured by the organising team. Since going live at the end of September 2024, 24 conferences have been configured with this option.

This development represents another step in strengthening the connections between Sciencesconf and HAL. By streamlining the deposit process, it offers a genuine time-saving benefit for both authors and organising teams.

Integration
of the ORCID identifier

Another new feature in the submission form for abstracts and conference papers is the inclusion of the "ORCID Identifier" metadata field, available since September. This allows for more complete author information.

A total of 5,858 ORCID Identifiers have already been added, ensuring the unique and reliable identification of authors. In this way, Sciencesconf helps track researchers' scientific contributions, ensure accurate attribution - especially when a paper is imported into HAL - and increase visibility in research databases.

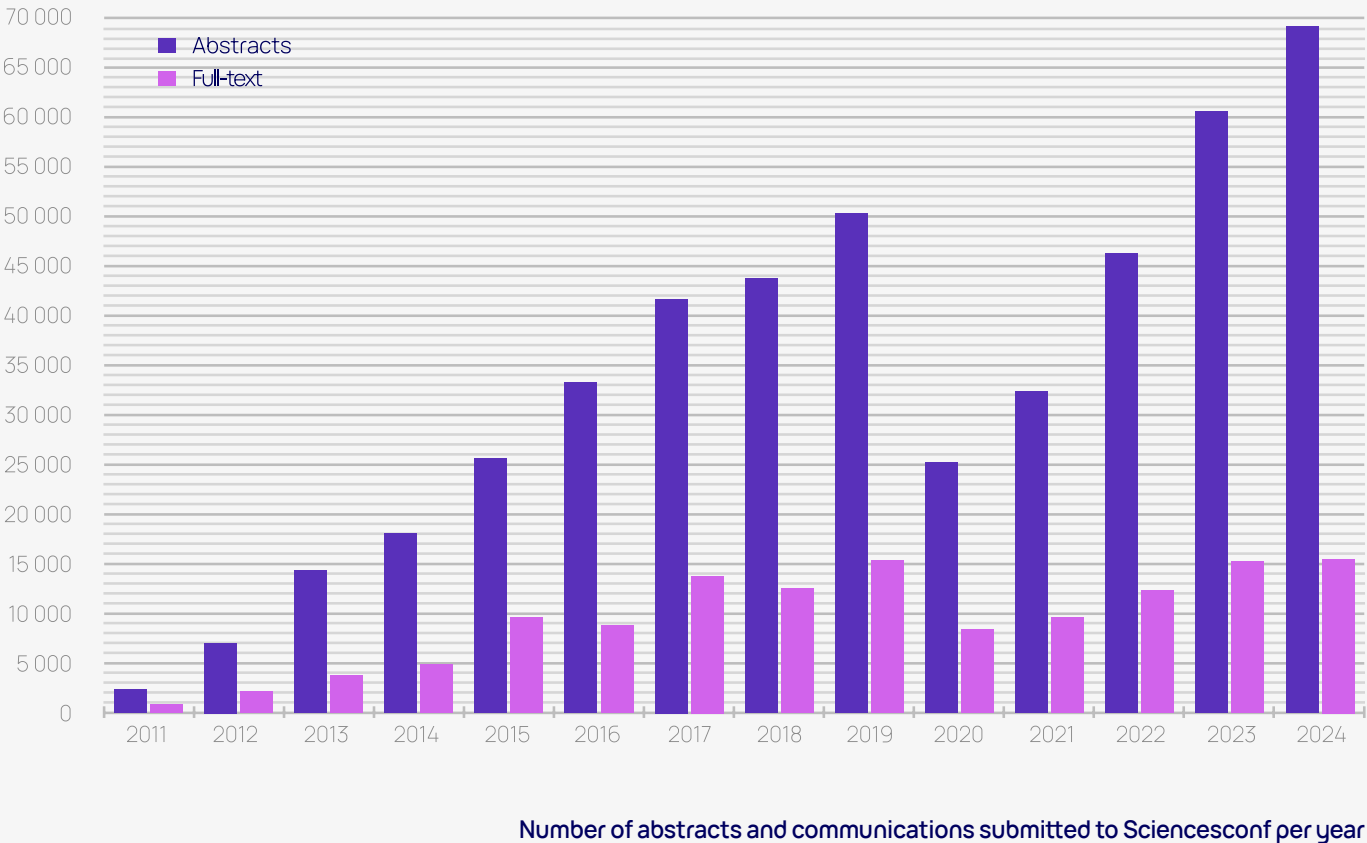
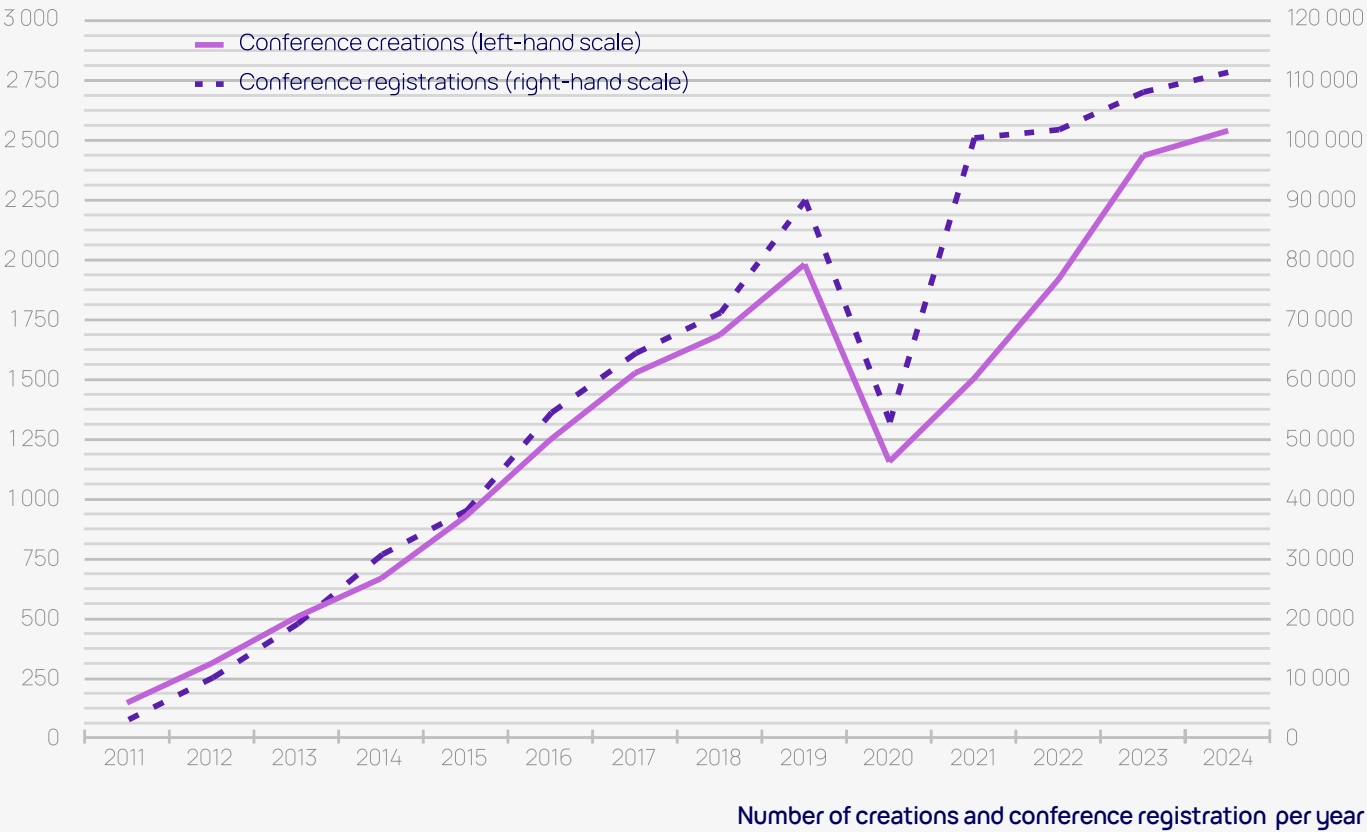
15,000 conferences
and counting

At the beginning of December, the number of conferences managed via Sciencesconf passed the symbolic milestone of 15,000!

Almost 15 years after its launch the platform's official launch in December 2010. This milestone reflects the success and continued relevance of the Sciencesconf service offering within the research and scholarly communication landscape. The platform has firmly established itself as an essential tool for managing and organising academic conferences.

Expanded export options
in editorial management

The file export function within the editorial management system is no longer limited to PDF files and supplementary files. It now includes all source files, as well as any files that could not be converted to PDF during submission. This ensures that the organising team receives a complete export and makes it easier to carry out copy-editing for the publication of the conference proceedings.



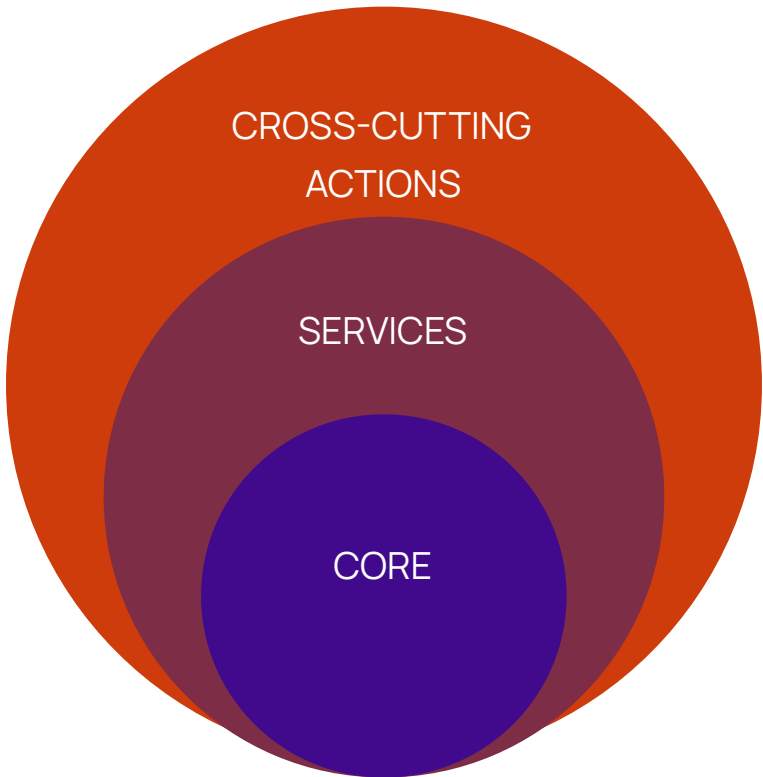
EquipeX+ HALiance project



Equipex+ HALiance is a 5.5-year project funded with a budget of €3.4m. Centred on HAL, its goal is to expand the service offer, strengthen interactions with other players in the knowledge ecosystem and fully satisfy Open Science criteria of excellence, both nationally and internationally. It is based on renewal of the core hardware and software

Key highlights of the third year of the project include the delivery of the first user interfaces resulting from the code migration, the implementation of a new relationship system to link publications, datasets and software, and the submission of the report for CoreTrustSeal certification.

Divided into 9 Work Packages (WP)



Achievements in 2024

WP1	Upgrading and securing HAL's physical infrastructure	<ul style="list-style-type: none">- Implementation of redundant backup at an Inria data centre- Analysis of database migration to a cluster to ensure high availability- Hardware upgrades (GPU servers)
WP2	Migrating, securing and opening the HAL software code	<ul style="list-style-type: none">- Continued migration of HAL's application code to a new development environment.- Development of a new citation display system (CSL)- Production deployment of the first migrated user interfaces
WP3	Metadata extraction and alignment with HAL reference data	<ul style="list-style-type: none">- Extraction of ANR project references from deposited PDF files and alignment with reference data- Extraction of dissemination licences (CC and copyright) from deposited PDF files- Extraction of research infrastructure references from deposited PDF files and alignment with data.gouv data
WP4	Organising and documenting the life cycle of bibliographic metadata imported to HAL	<i>The actions in this work package depend on the progress of WP2.</i>
WP5	Coordinating HAL with preprint review systems and making the publication cycle visible	<ul style="list-style-type: none">- Implementation of updates to the COAR Notify protocol for communication between HAL-PCI.
WP6	Implementing a new method for populating HAL by collecting scientific publications (full text)	<ul style="list-style-type: none">- Enable authors of conference papers to automatically transfer their documents from Sciencesconf to HAL
WP7	Coordinating publications in HAL and the research data associated with them	<ul style="list-style-type: none">- Implementation of a new system for linking resources (internal and external)
WP8	Ensuring visibility and uptake of new HAL services by its users	<ul style="list-style-type: none">- Updates to user documentation- Satisfaction survey on the deposit suggestion service- Publication of blog posts on the CCSD website- Publication of news on the CNRS intranet, distribution on communication channels
WP9	Ensuring consistency with FAIR principles	<ul style="list-style-type: none">- Drafting of the report for CTS (CoreTrustSeal) evaluation, second review phase in progress.

User support, training and assistance

Diversification and development of support offer

2024 marked an important milestone in the development of user support, with the launch of a new platform fully dedicated to the CCSD's training offer. Launched in November, the HAL Formation site combines access to resources that help users get started with HAL and master its features, with various training formats (self-paced, online or in-person). Prior to its launch, a test phase was carried out with around thirty users from diverse backgrounds. These participants were selected following a call for volunteers, which saw strong engagement - 163 people expressed interest. Thanks to their feedback, the site's user interface was refined.

The launch of this new site is in synergy with other initiatives to improve access to information and support for platform users. The HAL "The Essentials" practical guides provide concise summaries of key HAL features and meet the need for accessible, easy-to-consult information. Four guides are already available in both French and English.

In addition, to share information regularly with the wider community, a toolbox newsletter - UsuHAL - is sent every three weeks via mailing lists (nearly 5,000 email addresses). It highlights the resources and materials available in "HAL Formation" and in the platform's documentation.

✦ Choosing a Creative Commons licence for a deposit : the first self-training module

Recognising the importance of choosing the right licence for disseminating publications, the team decided to dedicate the first self-paced training module to Creative Commons licences. This module, developed based on the webinar "Best Practices for Using Licences in HAL"; delivered by Lionel Maurel

in 2023 and reviewed by members of the Medici Network's Copyright Working Group, enables researchers to familiarise themselves with the various licences and select the one best suited to their publications, particularly for deposits in HAL.

✦ Validation of HAL deposits : expansion of the training offer

To strengthen the network of institutions responsible for the technical and legal validation of deposits, it is essential to raise awareness and promote this critical step in the workflow. In 2024, seven in-person training sessions were organised, providing

institutions seeking moderation delegation - as well as existing moderators - with the opportunity to acquire or update their skills. 65 people took part in these sessions.

University of French Polynesia

As part of the implementation of its open science roadmap, the Research Department at the University of French Polynesia - led by the University Library - invited the CCSD team to collaborate on designing a training and outreach programme focused on open access publishing and HAL. This collaboration took the form of an on-site visit by Bénédicte Kuntziger, who delivered around twenty hours of training sessions and workshops tailored to the needs of different university audiences:

teaching and research staff, PhD students, librarians, collection managers and HAL portal administrators.

The training cycle concluded with a presentation during a half-day event dedicated to open science.

Panorama of the activity of user support

Training delivered

269 hours of training in a total of **166** sessions (including support for the creation of portals)

1,031 people trained
of whom **58 %** were researchers

31 hours of external training over **8** sessions (Enssib, Mediadix, InSHS) for **72** people trained.

Moderation

69,452 deposits posted online by the CCSD team

4,15 % of deposits rejected for non-compliance

111,485 document verification actions (posted online, requests, correction of deposits)

Share of CCSD activity

41% of uploads

38% of total verification actions



Specific support

Support for the creation of portals : **9** training sessions for **83** people trained

Support tickets

15,287 tickets handled in 2024 (HAL and Sciencesconf)

80 % of tickets concern HAL

Communication and dissemination of information

Let's talk Open Science

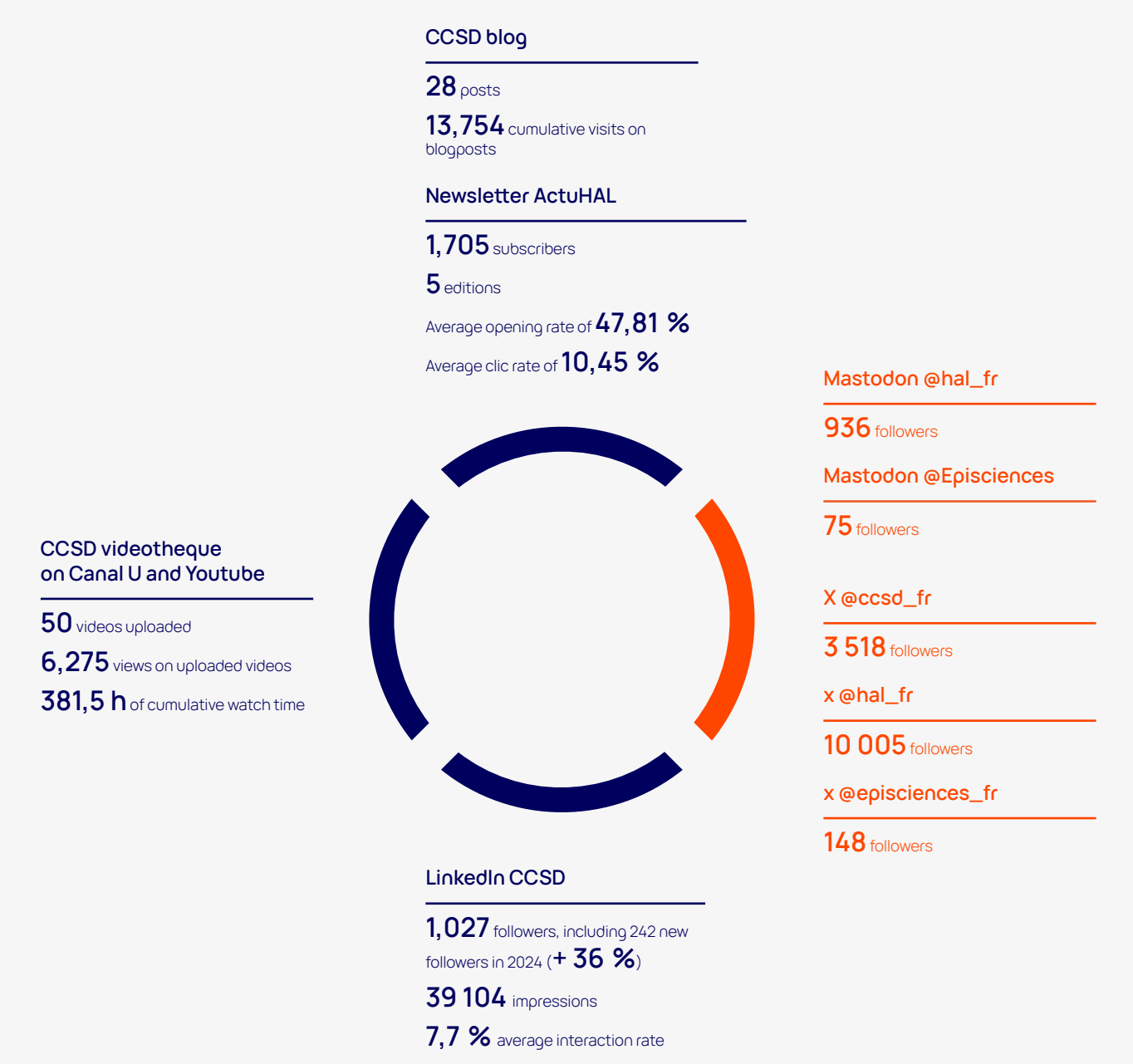
Since 2021, the CCSD has been offering webinars on open science and the platforms it develops in support of the national open science policy. Open to all, each edition has proven highly successful. The video recordings are available on the CCSD's Canal U and YouTube channels.

Three sessions were offered in 2024: the first focused on rights retention in the context of open access publishing and addressed the strategy of non-transfer of rights; the second highlighted Episciences projects and service offerings, including feedback from a new journal, Open Plasma Science; and the third - the result of a partnership with Software Heritage - featured case studies from institutions that have incorporated a "Software" component into their open science policies. These three sessions attracted 781 participants, bringing the total number of attendees since the series began to 2,096.

A sonic identity for video content

The growing number of multimedia resources created by various CCSD teams led to the need for a unified sonic identity to ensure greater consistency. This has been implemented through intro/outro themes and musical transitions. It strengthens the brand identity while also enhancing the professional quality of CCSD video content.

Communication channels of the CCSD



List of publications

January

24-26 january - Rome
Sebastien Mazzaresse.
Formation des nouveaux entrants, Écoles françaises à l'étranger.

February

6 february - Paris
Raphaël Tournoy. *Episciences : intégration à l'EOSC Marketplace*. Première journée EOSC au CNRS

Raphaël Tournoy. *Diffuser, évaluer et publier les recherches en libre accès à partir d'overlay services*. Enssib, Formation DCB32 : Donnée et Sciences ouvertes.

March

20 March - online
Céline Barthonnat et Raphaël Tournoy. *Présentation d'Episciences, Aurora Open Science Training* - Workshop Navigating Open Access Publishing.

April

4 april - Nice
Yannick Barborini. *Lien publication-données dans HAL*. Journée Cycle de vie des données en biologie

11 april - Reims
Céline Barthonnat et Raphaël Tournoy. *Episciences : plateforme d'édition et de publication scientifique en accès ouvert diamant*. Journée d'étude sur l'édition scientifique en accès ouvert : nouveaux modèles, nouveaux contenus, évolution du reviewing

25 april - Zadar (Croatia)
Céline Barthonnat et Raphaël Tournoy. *Publishing Diamond Open Access Overlay Journals*. OPERAS Conference Opening collaboration for community-driven scholarly communication.

May

14 may - online
Céline Barthonnat et Raphaël Tournoy. *Episciences au service de la biodiversité*. Parlons Science ouverte #9

23 may - Lyon
Hélène Bégnis, Maria-Emilia Herbet. *HAL et ORCID, media de centralisation des recherches*. Diffuser, publier, éditer, entre volonté politique et réalité juridique. Journée de l'EDIEC

24 may - Vannes
Hélène Bégnis. *Ouvrir ses publications, Ouvrir la science à l'université : Pour qui ? Pourquoi ? Comment ?*

28 may - Lyon
Hélène Bégnis, Célia Lentretien. *Comment encourager et faciliter les dépôts en archive ouverte ?* Enssib

28 may - Tours
Céline Barthonnat. *Publishing Diamond Open Access Overlay Journals*. Groupement de recherche Chromodynamique quantique (GDR QCQD)

29 may - online
Raphaël Tournoy. *Episciences overlay journals et nepHAL+*. Webinaire du GT Notebook

31 may - online
Nathalie Fargier. *HAL, une plateforme d'archives ouvertes au service de la diffusion et du partage des connaissances scientifiques*. Atelier Science ouverte et santé du GRISOF.

June

5-6 june - Göteborg (Suede)
Open repositories 2024
– Yannick Barborini, Bénédicte Kuntziger, Philippe Chan. *Semi-automatic submissions in the French open archive HAL*
– Nathalie Fargier. *Beyond access, Upholding the Integrity of Scientific Publications in HAL Open Archive*
– Raphaël Tournoy. *Promoting the use of preprints and overlay services on the HAL open archive with COAR Notify*
– Raphaël Tournoy. *Episciences : Diamond Open Access with Overlay Journals. Repositories and Diamond Open Access Panel*

6-7 june - Göteborg (Suede)
COAR Annual Conference 2024
– Nathalie Fargier. *An integrated national approach to shaping the future of scholarly communications*
– Raphaël Tournoy. *Overlay services on top of HAL using COAR Notify*

12 june - Paris
Céline Barthonnat. *Episciences: Diamond Open Access publishing with overlay journals*. Epiga 2024 Conference - Open science afternoon in mathematics.

12-14 june - Gif-sur-Yvette (Paris)
Journées CasuHAL- Université Paris-Saclay
– Pascal Lubino. *Point d'étape du groupe de travail formation*
– Hélène Bégnis. *Point d'étape du groupe de travail documentation*
– Hélène Bégnis, Yannick Barborini. *Carte blanche au CCSD*

19 june - Lyon
Nathalie Fargier. *La science ouverte sur le terrain*. Journée CREATIS

June 2024 - Prague (Czech Republic)
Achraf Azhar. *PIDs and HAL, the French Open Archive. PIDfest Conference 2024*. [Publication HAL](#)

26 June - Bad Ems (Germany)
Raphaël Tournoy. *Episciences overlay journals and their place in the open access landscape*. Open Communications in Nonlinear Mathematical Physics

26 June - online
Raphaël Tournoy. *Episciences : Diamond Open Access with Overlay Journals*. Open Communications in Nonlinear Mathematical Physics

26 June - Lyon
Bruno Marmol. Table ronde «*En route vers l'a11y. Où en sommes-nous ?*» Journées du réseau Medici

September

12 -13 september – Paris
EOSC French National tripartite event
– Yannick Barborini. *Archiving, referencing and describing software with HAL and Software Heritage*

– Yannick Barborini, Morane Gruenpeter, Eric Jeangirard, Daniel le Berre. *Discussion about software infrastructures in the EOSC context*
– Nathalie Fargier. *HAL+ : A Research Infrastructure dedicated to Open Science*

25 september - online
Sabrina Granger, Hélène Bégnis, Sébastien Mazzaresse. *HAL et Software Heritage au service des bibliothèques*. Webinaire pré-congrès ADBU 2024 ([10.5281/zenodo.13844159](#)) ([hal-04707565](#)).

October

9 - 10 october - Dijon
Hélène Bégnis, Léo Rimbault, Pascal Lubino. Stand commun avec Software Heritage. Congrès ADBU

15 october - Lyon
Agnès Magron. *Reconnaître tous les auteurs d'une publication*. ANF Éthique, déontologie, intégrité scientifique appliqués aux recherches en SHS

28 october - online
Raphaël Tournoy, Dieudonné Kabkiz. *La Revue Africaine de Santé et de Productions Animales (RASPA)*. Webinaire LIBSENSE sur la Publication en Libre Accès en Afrique

November

14 november - Clermont-Ferrand
Nathalie Fargier. *HAL et l'intégrité scientifique : enjeux et dispositif*. La science ouverte comme pilier de l'intégrité scientifique. Université Clermont-Auvergne

Key
Intervention in a scientific conference
Organisation of a training for an external structure

12 - 21 november - Université de la Polynésie française
Bénédicte Kuntziger
– Sensibilisation à la science ouverte et à HAL pour l'équipe de la BU.
– Déposer dans HAL et gérer ses dépôts
– Gérer sa collection dans HAL
– Panorama de la science ouverte
– Atelier avec les administrateurs du portail HAL-UPF
– HAL archive ouverte
– Formation à destination de l'équipe des formatrices de la bibliothèque universitaire

20 november - Polynésie française
Bénédicte Kuntziger. *Point d'avancement sur la science ouverte et infrastructure de recherche HAL+, pilier de la science ouverte française*. Séminaire Science ouverte - données de la recherche

21 november -online
Raphaël Tournoy. *Episciences Overlay Journals*. Scicodes consortium meeting

26 november - Paris
Agnès Magron. Table ronde "La doctrine ouverte juridique est-elle soluble dans l'intelligence artificielle ?". Rendez-vous des transformations du droit

26 november - Paris
Hélène Bégnis. *HAL au service du chercheur*. Semaine de la science ouverte à Paris 1 Panthéon-Sorbonne.

December

12 december - online
Sébastien Mazzaresse, Achraf Azhar. *L'IA au service de l'auto-archivage et de la qualité des données dans HAL*. Rencontres du réseau Isore 2024.

Infrastructure

The infrastructure, which forms the foundation of HAL+, is supported by the IN2P3 Computing Centre, which hosts the servers and data, by CINES for long-term preservation, and by the Inria Paris center for redundant backup.

Migration and upgrade

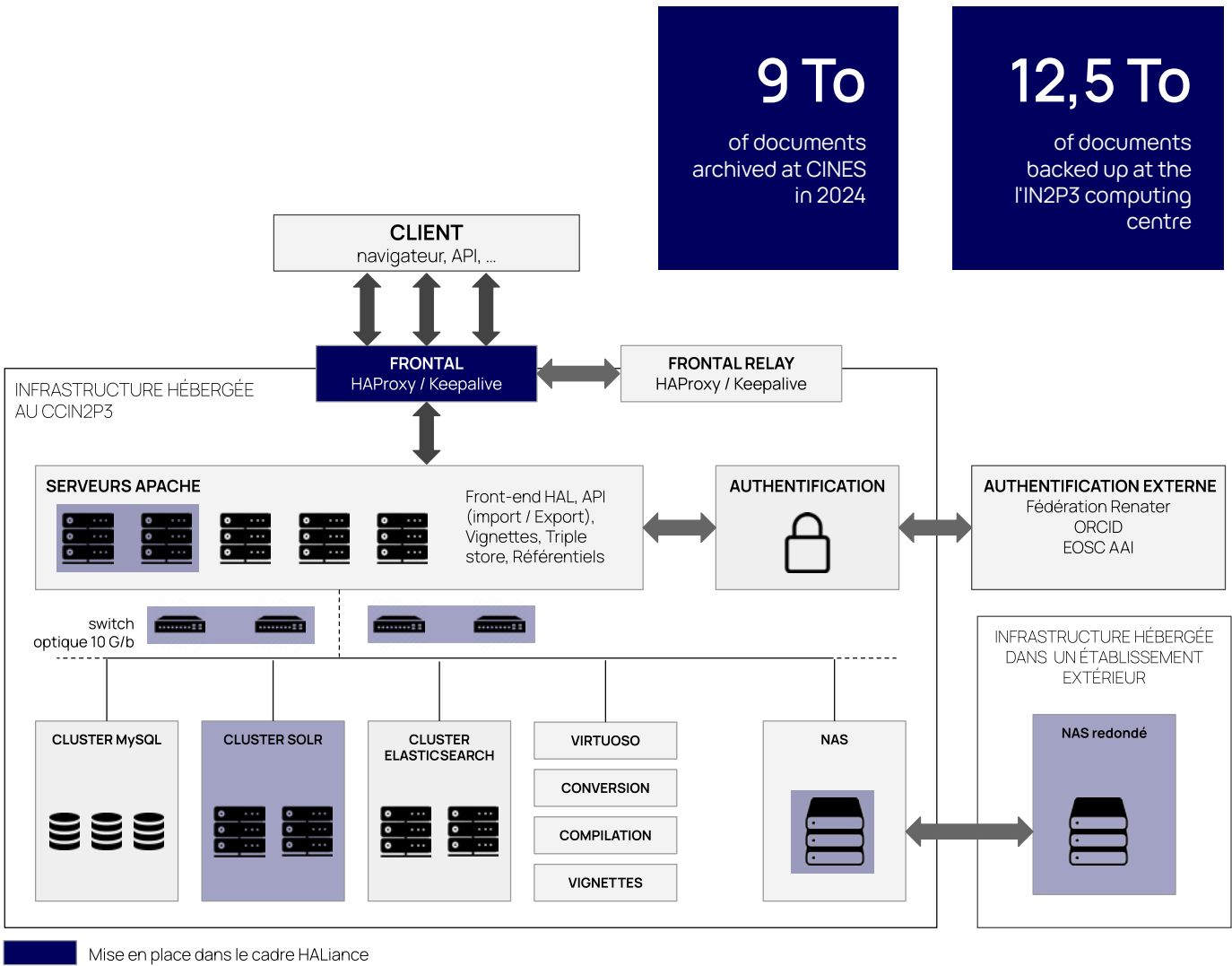
- Migration to Proxmox 8 :
- all virtual machines (VMs) are now hosted on a Proxmox 8 cluster
- Migration to Debian 12 :
- migration of over 150 VMs to Debian 12, including the HAL production and pre-production VMs
- Migration to MySQL8 :
- migration of production and pre-production clusters from Ubuntu 18 to Debian 12
 - preparation of servers and databases for migration to MySQL 8 and innoDB clusters
 - upgrade of 2 database servers
- Migration of Solr clusters :
- migration to Solr9

Virtualisation

- Improvements :
- addition of 3 new GPU-equipped hypervisors for optimal use of Grobid
 - deployment of processors suited to VM workloads
 - installation of fibre cards on production servers
 - renewal of production hypervisors
 - decommissioning of old hypervisors from the production platform

Security

- installation of an SSH bastion host to standardise external logins
- firmware and BIOS updates on all servers
- upgrade of various software tools, including Proxmox and Solr
- installation of an iDRAC network for remote access to physical servers
- enhanced bot filtering on the HAL platform
- ongoing development of the future LemonLDAP authentication platform
- deployment of Tripwire to monitor file integrity



Resources

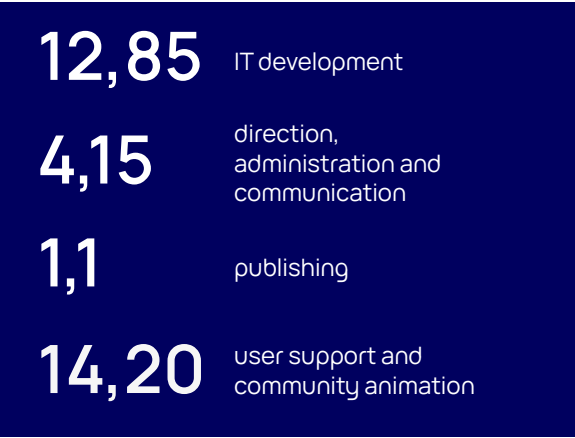
Human resources

In 2024, the CCSD had 32.3 FTEs (full-time equivalent employees), working in the fields of IT development, network system administration, scientific and technical information, publishing, communication and management.

During the year, 2 people were appointed, 9 fixed-term contract and 1 student-apprentice were recruited and 9 fixed-term contracts staff left the CCSD.



Distribution (by FTEs)



Budget data

- Operating expenses
- Investment expenses
- Payroll expenses
- Resources
- Multi-year resources bound to projects

