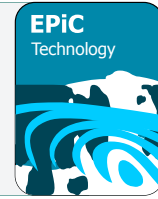




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Research Information Systems in France: Fragmentation, Interoperability, and Emerging Opportunities

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Abstract

Research Information Systems (RIS), also known as Current Research Information Systems (CRIS), have become essential infrastructures for the governance, management, and evaluation of research. While many countries have adopted integrated and standardized approaches to research information management, France presents a markedly different trajectory. This paper examines the French CRIS landscape and argues that it is characterized by a structural tension between institutional fragmentation and the growing need for coordination and interoperability.

Drawing on policy reports, institutional initiatives, and recent developments in the French research ecosystem, the paper analyzes the main characteristics of French CRIS, including the absence of a unified national system, the heterogeneity of tools and practices, and the limited interoperability between existing platforms. Particular attention is given to research organizations, higher education institutions, and laboratories, as well as to national initiatives such as CapLab, CRISalid, scanR, and the Open Science Barometer.

The analysis shows that, despite repeated attempts at coordination, France is unlikely to converge toward a single national CRIS. Instead, current developments point toward a decentralized but increasingly interconnected ecosystem built around persistent identifiers, open science infrastructures, and interoperable services. The paper concludes that the future of research information management in France will depend less on institutional centralization than on the ability to connect diverse systems through shared standards, collaborative governance, and common digital infrastructures.

1 Introduction

Research Information Systems (RIS or CRIS^{*}) have become central infrastructures in the governance, management, and evaluation of contemporary research ecosystems. These systems support the collection, structuring, analysis, and dissemination of information related to research activities, including projects, publications, funding, and institutional affiliations. In many countries, CRIS have evolved toward integrated, standardized, and interoperable platforms that facilitate both institutional decision-making and international visibility.

In France, however, the development of CRIS presents a markedly different trajectory. Despite its position among the leading global research nations, the French research ecosystem is characterized by a high degree of institutional diversity, organizational autonomy, and administrative complexity. This has led to the emergence of a fragmented landscape of research information systems, marked by heterogeneity, limited interoperability, and the absence of a unified national framework.

This essay argues that the French CRIS landscape is defined by a structural tension between fragmentation and coordination. While the proliferation of diverse systems reflects institutional autonomy and functional adaptability, it also generates inefficiencies, redundancies, and barriers to interoperability. At the same time, recent initiatives—particularly the adoption of persistent identifiers and the emergence of modular, community-driven projects such as CRISalid—signal a shift toward a more interconnected and standardized ecosystem. These developments, combined with broader transformations in research governance, create significant opportunities for the future evolution of CRIS in France.

The following analysis examines this landscape in detail, moving from structural fragmentation to emerging coordination mechanisms and, finally, to future opportunities for system development[†].

2 The French Research Context and the Role of RIS

France occupies a prominent position in the global research system, ranking among the top fifteen countries in scientific production. The national research ecosystem includes approximately 340,000 researchers distributed across more than 3,000 laboratories, over 70 universities, and numerous national research organizations, alongside extensive private-sector R&D activity (OECD, 2025; OST, 2024).

This complex institutional environment generates a fundamental need for structured research information management. Research activities must be planned, monitored, evaluated, and reported, requiring robust information systems capable of handling diverse data types and workflows. CRIS, in this context, are not merely technical tools but strategic infrastructures that support governance, funding allocation, and scientific visibility.

However, unlike countries that have implemented centralized or standardized CRIS frameworks, France has developed a multiplicity of systems responding to local needs and institutional constraints. As highlighted in the presentation, CRIS should be understood as an umbrella term encompassing a wide range of tools with partial functional equivalence rather than a single, unified model.

^{*} Current Research Information Systems (CRIS) is the usual term in Europe.

[†] This paper is based on the following book: Schöpfel, J., & Azeroual, O. (2026). *Les systèmes d'information sur la recherche - évaluation, performance et responsabilité*. Retrieved from <https://www.istegroup.com/fr/produit/les-systemes-dinformation-sur-la-recherche/>

3 A Highly Fragmented and Non-Standardized Landscape

The French landscape of research information systems is characterized less by the presence of a coherent national infrastructure than by the coexistence of a multitude of systems developed at different institutional levels and for different purposes. This configuration reflects the broader organization of French higher education and research, which combines institutional diversity, multi-level governance, and a strong tradition of organizational autonomy. While this pluralism has encouraged local innovation and the development of solutions tailored to specific needs, it has also generated significant challenges in terms of coordination, interoperability, and data quality. Three interrelated characteristics are particularly noteworthy: the absence of a unified national system, the heterogeneity of tools and practices, and the limited interoperability between existing solutions. Together, these features help explain both the strengths and the limitations of the current French CRIS landscape.

3.1 Absence of a Unified National System

One of the defining characteristics of the French CRIS landscape is the absence of a unified national system. Unlike countries such as Finland, Portugal, or the Netherlands, France has not adopted a common software platform or a standardized national infrastructure for managing research information. Instead, multiple systems coexist at different levels of the research ecosystem—including national research organizations, higher education institutions, research laboratories, and governmental agencies—each developed independently and often for specific administrative or operational purposes.

This fragmentation is closely linked to the structure of the French research system itself. Research units are frequently subject to multiple supervisory bodies, typically combining universities, national research organizations, and sometimes other public institutions. Each of these organizations has its own governance arrangements, reporting requirements, and information systems. Consequently, the same information may need to be entered, updated, and validated several times in different environments, generating administrative burdens, inefficiencies, and risks of inconsistency.

Several attempts have been made to move toward a more coordinated national framework. Projects such as REFP (IGAENR, 2018) and, more recently, CapLab (see below) sought to establish shared infrastructures and common reference systems. However, these initiatives failed to achieve widespread adoption, reflecting both the diversity of institutional needs and the reluctance of stakeholders to relinquish control over locally developed solutions. As a result, the French CRIS landscape remains largely decentralized, with coordination occurring primarily through data exchange mechanisms rather than through a common platform.

3.2 Heterogeneity of Tools and Practices

The diversity of research information systems in France is evident in the wide range of tools and practices employed across institutions. Research organizations, universities, and laboratories rely on a combination of internally developed systems, shared platforms promoted by national agencies such as AMUE, commercial software solutions, and locally developed applications. In many cases, these systems coexist with simpler tools such as spreadsheets or local databases that continue to play an important role in day-to-day research administration.

This heterogeneity extends beyond technological choices to encompass functional scope and organizational objectives. Some systems are primarily designed for administrative management, focusing on personnel, organizational structures, budgets, and contracts. Others emphasize bibliographic monitoring, publication management, project tracking, evaluation support, or reporting. Few systems provide comprehensive coverage of the entire research lifecycle, from project

conception and funding acquisition to dissemination, impact assessment, and open science monitoring.

The diversity is particularly pronounced at the laboratory level. Surveys conducted among French research laboratories reveal a rich ecosystem of locally developed tools that respond to specific disciplinary, organizational, or evaluation needs (Schöpfel, Prost, Jacquemin, Kergosien, & Thiault, 2024). These range from relatively simple applications for managing bibliographic references and feeding institutional repositories such as HAL, to more sophisticated systems supporting project monitoring, bibliometric analysis, and the preparation of evaluation reports. While such flexibility enables laboratories to tailor systems to local requirements, it also raises important concerns regarding sustainability, maintenance, documentation, and long-term viability. In many cases, systems depend heavily on the expertise of a single developer or a small team, creating significant risks in terms of continuity and scalability.

From a broader perspective, this diversity reflects both a strength and a weakness of the French research system. On the one hand, it encourages innovation and adaptation to local contexts; on the other, it contributes to the proliferation of disconnected solutions and makes it more difficult to establish common practices and shared standards across institutions.

3.3 Weak Interoperability and Lack of Standards

A major consequence of fragmentation and heterogeneity is the limited interoperability between systems. Research information is distributed across multiple databases, applications, and platforms that often use different data structures, metadata schemes, classifications, and identifiers. As a result, exchanging, aggregating, and reusing information across institutional boundaries remains a complex and resource-intensive process.

The challenge is not merely technical. Even when systems are capable of exchanging data through APIs or export functions, semantic interoperability remains problematic. Institutions frequently employ different definitions of research activities, disciplinary classifications, publication types, organizational structures, and performance indicators. The absence of common vocabularies and harmonized metadata standards reduces the quality and usefulness of data exchanges and complicates efforts to produce consolidated views of research activity at regional or national levels.

Historically, France played an important role in the development of international research information standards, notably through its contribution to CERIF. However, adoption of such standards within French institutions has remained limited. Consequently, many French systems operate largely outside international CRIS infrastructures and remain underrepresented in international registries and directories. This situation contrasts with developments in several other European countries, where national coordination strategies have promoted stronger standardization and interoperability.

Recent initiatives suggest that this situation may gradually evolve. In particular, the national strategy for persistent identifiers (PIDs), including ORCID, ROR, DOI, and related identifiers, seeks to establish a common layer of interoperability without imposing a unified information system (Blanc, 2025). By facilitating reliable identification of researchers, organizations, projects, publications, and datasets, PIDs offer a pragmatic approach to improving data quality, reducing duplication, and enhancing information exchange across institutional boundaries. Nevertheless, significant challenges remain before a fully interoperable French research information ecosystem can be achieved.

4 Institutional Systems: Between Functionality and Limitations

Research organizations occupy a central position in the French research ecosystem and have therefore been among the first actors to develop digital systems for managing scientific information. Institutions such as CNRS, INRIA, and INRAE have progressively built information infrastructures designed to support the management of research units, personnel, projects, and scientific outputs. These systems reflect the growing need for reliable information to support strategic steering, evaluation, reporting, and accountability.

However, the historical development of these systems has largely been driven by administrative and organizational requirements rather than by the objective of creating comprehensive research information systems. As a result, they often resemble institutional management systems more than fully integrated CRIS. Their evolution illustrates both the strengths of the French approach—particularly in terms of data governance and institutional control—and its limitations regarding interoperability, researcher services, and integration across the research lifecycle.

4.1 Research Organizations

All major French research organizations have developed tools intended to manage scientific information and support institutional governance. In many cases, these systems are connected to external information sources, particularly the national open repository HAL, which has become the primary source of publication data for several organizations, including INRIA and INRAE. Through shared reference data on researchers, affiliations, and research units, HAL increasingly serves as a common information layer within the French research ecosystem.

Despite these developments, most institutional systems remain focused on administrative and managerial functions. Their primary purpose is often to support organizational management, resource allocation, personnel monitoring, contractual activities, and reporting obligations rather than to provide a comprehensive representation of research activities and outputs. Yet, they generally lack functionalities commonly associated with modern research information systems, such as integrated researcher profiles, comprehensive project tracking, automated reporting, advanced analytics, or support for research assessment and visibility. They also tend to cover only part of the research lifecycle and often remain poorly connected to external systems and international infrastructures.

At the same time, recent policy developments are creating pressure for change. National efforts to simplify administrative procedures, improve research governance, and reduce reporting burdens increasingly require more integrated and interoperable information environments. In this context, research organizations face the challenge of transforming historically administrative systems into infrastructures capable of supporting both institutional management and broader research information needs.

4.2 The Case of Labintel

The CNRS information system Labintel provides one of the most illustrative examples of the French approach to research information management. Launched in 1987 and continuously expanded over subsequent decades, Labintel long represented the most visible and influential research management system in France, reflecting the central role of CNRS within the national research landscape (Harry, 2013).

Labintel functions primarily as a reference system for CNRS research units. It combines a centralized database, web-based interfaces for data maintenance, automated data flows from human resources and financial systems, and a distributed governance structure designed to ensure data

quality and reliability. Its principal role is to manage information on research structures, personnel, organizational hierarchies, disciplinary classifications, and positions within laboratories. Since 2016, it has been complemented by the RESEDA platform, which supplies reference data on laboratories and personnel.

Although Labintel contains some elements commonly associated with research information systems—including data on projects, equipment, scientific themes, and, to a limited extent, publications—it cannot be considered a fully-fledged CRIS. Its architecture and governance remain centered on administrative management rather than on the representation of scientific activities themselves. Unlike systems such as DSpace-CRIS, Pure, or Converis, Labintel does not provide detailed indexing of scientific outputs, comprehensive researcher profiles, public dissemination services, or broad support for research visibility and impact assessment.

Another limitation concerns interoperability. While Labintel interacts with other CNRS systems and contributes data to evaluation processes, it was not originally designed according to international RIS standards such as CERIF. Consequently, integration with external systems remains limited and often depends on specific interfaces or ad hoc developments. For example, the preparation of evaluation dossiers for Hcéres relies on a separate platform, xLab, which imports selected information from Labintel rather than operating within a fully integrated information environment.

Nevertheless, Labintel should not be viewed solely through the lens of its limitations. Its longevity, institutional legitimacy, and comprehensive coverage of organizational data make it a valuable strategic asset. In principle, a modern research information system could build upon Labintel's reference data on researchers, projects, and research units, while adding functionalities related to dissemination, evaluation, analytics, and interoperability. The challenge is therefore not to replace systems such as Labintel, but rather to connect them to broader research information infrastructures capable of serving both institutional governance and the needs of researchers.

More broadly, Labintel illustrates a recurrent characteristic of the French landscape: information systems have often been developed primarily to satisfy administrative and managerial requirements, whereas researcher-centered services, interoperability, and international visibility have remained secondary considerations. The ongoing evolution of research assessment practices, open science policies, and persistent identifier infrastructures may gradually rebalance these priorities in the coming years.

4.3 Universities

In early 2025, the French Ministry of Higher Education and Research published a report on the governance and deployment of management information systems across public higher education institutions (IGESR, 2025). The report recommends stronger ministerial coordination, greater harmonization of tools, and the adoption of shared reference frameworks. While users expressed overall satisfaction, the audit identified significant needs for professionalization, cost assessment, and system mutualization, ultimately advocating the creation of a nationally coordinated core information system.

Although the review focused primarily on student administration, human resources, and finance, it also highlighted the fragmented state of research information systems. Institutions rely on a heterogeneous mix of shared platforms, locally developed applications, commercial software, and ad hoc tools, resulting in substantial variation in functionality, technological architecture, and data management practices. Large universities often use AMUE solutions, while others rely on software developed by the Cocktail consortium or complementary tools such as ESUP applications and spreadsheets.

The audit identified governance as a major weakness. Responsibility for research information management is often unclear, resulting in insufficient data quality processes and limited strategic oversight. More broadly, the report notes the absence of a fully operational shared national CRIS.

Following the discontinuation of the AMUE-led CapLab project in late 2024 due to insufficient institutional uptake, the prospect of a unified research information system remains uncertain, particularly given the complexity of joint research units operating under multiple supervisory authorities.

This situation contrasts with earlier recommendations advocating a cloud-based “Laboratory Information System” built around shared research reference data and common technical infrastructures (IGAENR, 2018). These proposals were never fully implemented, and the associated REFP reference framework was discontinued in 2019.

As a result, few institutions possess a comprehensive CRIS dedicated to research management. Research-related information remains dispersed across multiple internal systems (human resources, finance, student administration, equipment management) and external sources (repositories, bibliographic databases, catalogs, and thesis platforms), limiting integration and reuse. Recent discussions within the Couperin consortium have also highlighted concerns regarding data governance, privacy, and surveillance. At the same time, the growing use of scientometric databases such as Web of Science, Scopus, and OpenAlex for research evaluation continues to raise questions about data completeness, transparency, and ownership.

5 The Case of CapLab

The fragmented nature of the French research information system landscape has repeatedly prompted calls for greater coordination and mutualization. Over the past decade, several initiatives have sought to establish shared infrastructures capable of reducing duplication, improving data quality, and facilitating research management across institutions. Among these initiatives, the CapLab project, led by AMUE, represented the most ambitious attempt to develop a common national platform for research information management.

CapLab was conceived not as a comprehensive CRIS comparable to Pure or Converis, but rather as a shared platform for managing research projects and scientific activities. Its objective was to centralize project-related information, make it accessible to both research units and their supervisory institutions, and reduce the need for multiple data entries across different systems (Thouy, 2015). More broadly, CapLab formed part of a wider strategy aimed at building a coordinated research information infrastructure through interoperability with other tools developed by AMUE and CNRS, including systems for financial management, budgeting, reporting, and decision support (Bougnague, Pérotin, & Mocquet, 2021).

The foundations of CapLab were established in the early 2010s, with a pilot phase conducted between 2017 and 2021 in collaboration with universities, research organizations, and technical partners. The project adopted an agile development approach and demonstrated promising results. Notably, it integrated data from the French National Research Agency (ANR) and supported the management of internal calls for projects at institutions such as the University of Lorraine. These experiments showed that the platform could support the full project lifecycle, from proposal submission to reporting and dissemination of results.

Despite these achievements, CapLab ultimately failed to secure the broad institutional support necessary for large-scale deployment. Although technically viable, the project struggled to attract a sufficiently large community of users and institutions willing to integrate it into their existing information environments. Consequently, AMUE decided to discontinue the project at the end of 2024.

The failure of CapLab highlights several structural challenges that characterize the French CRIS landscape:

- * Resistance to centralized or standardized solutions;

- * The diversity of institutional contexts, priorities, and workflows;
- * The coexistence of multiple supervisory authorities within research units;
- * Limited incentives for institutions to abandon locally developed systems;
- * And the difficulty of building consensus among a large number of stakeholders with different governance arrangements and strategic objectives.

The CapLab experience offers important lessons for future CRIS development in France. First, it demonstrates the limits of top-down approaches in a highly decentralized research environment. Unlike countries where national coordination is facilitated by more homogeneous institutional structures, the French system is characterized by organizational diversity, strong institutional autonomy, and complex governance arrangements. In such a context, the implementation of a single shared platform faces significant political, organizational, and technical obstacles.

Second, the project illustrates that interoperability may be a more realistic objective than standardization. Rather than replacing existing systems, future initiatives are likely to focus on connecting them through shared identifiers, common reference data, and interoperable interfaces. This approach aligns with recent national efforts concerning persistent identifiers and research data exchange.

Finally, CapLab highlights the importance of community engagement and collaborative governance. The growing interest in initiatives such as CRISalid suggests that bottom-up approaches, built around modular components and voluntary participation, may be better suited to the French context than centrally imposed solutions. Future developments are therefore likely to emerge from networks of collaborating institutions rather than from a single national platform.

In this sense, the legacy of CapLab is not only the failure of a specific project but also a clearer understanding of the conditions under which a more integrated and interoperable French research information ecosystem might eventually emerge.

6 Persistent Identifiers as a Lever for Interoperability

The growing fragmentation of research information systems in France has reinforced the need for mechanisms capable of connecting heterogeneous platforms without imposing a single national system. In recent years, persistent identifiers (PIDs) have emerged as the cornerstone of the French strategy to improve interoperability, data quality, and administrative efficiency. Rather than pursuing the creation of a unified research information system, public authorities have adopted a more pragmatic approach based on shared identifiers and common reference data.

This strategy reflects a broader international trend. Countries such as the United Kingdom, the Netherlands, Australia, and the United States have demonstrated that persistent identifiers can significantly improve the circulation of research information while reducing administrative burdens. France has increasingly aligned itself with these developments, positioning identifiers as a key component of its efforts to modernize research management and support open science policies.

The current French strategy for persistent identifiers emerged from a broader national effort to simplify and modernize public research management. Since 2019, and more explicitly following governmental initiatives launched in 2023, the Ministry of Higher Education and Research has promoted the adoption of unique and persistent identifiers across research institutions, infrastructures, and information systems (Blanc, 2025; MESRI, 2021).

The objective is not to replace existing systems but to enable them to communicate more effectively. Persistent identifiers provide stable and unambiguous references for researchers, organizations, publications, datasets, software, projects, and other research entities. Examples include ORCID for researchers, ROR for organizations, DOI for publications and datasets, and other domain-specific identifiers.

A central principle of this strategy is the “tell us once” approach. Researchers and research units should no longer be required to enter the same information repeatedly in different systems. By relying on shared identifiers, information can be retrieved, verified, and reused across multiple platforms, reducing administrative workload while improving consistency and traceability.

The implementation of this strategy is supported by a collaborative governance framework involving universities, research organizations, data operators such as ABES, CCSD, and ANR, as well as international partners. Particular emphasis is placed on alignment with international standards and infrastructures to ensure long-term sustainability and interoperability.

In the French context, PIDs offer a pragmatic alternative to system standardization, enabling the connection of diverse infrastructures without imposing a single national platform. However, their effectiveness depends on widespread adoption, data quality, and alignment with international standards. Moreover, while PIDs address syntactic interoperability, they do not resolve semantic differences in metadata practices, classifications, and organizational structures. As a result, persistent identifiers should be regarded as a necessary but not sufficient condition for building an integrated, reliable, and interoperable research information ecosystem.

Additional challenges concern governance and sustainability. Many identifier infrastructures rely on international organizations whose governance models, funding mechanisms, and long-term sustainability remain subjects of discussion. Questions of digital sovereignty, data ownership, and dependence on external infrastructures are increasingly part of policy debates in France and elsewhere.

From this perspective, the French strategy based on persistent identifiers should be understood as an enabling infrastructure rather than a final solution. Its success will depend on its capacity to support broader efforts toward standardization, interoperability, and collaboration across the research system.

7 CRISalid: A Bottom-Up Model of Interoperable RIS

The limitations of previous attempts to establish a shared national research information system have encouraged the emergence of alternative approaches that place greater emphasis on flexibility, interoperability, and community participation. Within this context, CRISalid has emerged as one of the most promising initiatives in the French research information landscape. Rather than seeking to impose a single platform across institutions, CRISalid aims to provide a modular and interoperable ecosystem of tools that can be adapted to diverse organizational contexts while remaining connected through common standards and infrastructures.

In many respects, CRISalid can be viewed as a response to the lessons learned from CapLab. Whereas CapLab followed a centralized and largely top-down model, CRISalid adopts a decentralized, collaborative, and open-source approach. Its ambition is not to replace existing systems but to facilitate their integration and coordination through shared components, reference data, and interoperable services.

CRISalid is both a consortium and a community-driven project dedicated to the development of a free, modular, and interoperable research information system. Its overarching objective is to improve the collection, structuring, enrichment, validation, and dissemination of research information relating to researchers, scientific outputs, projects, and institutional affiliations (Reymond & Dornbusch, 2024; Reymond & Tabariès, 2024).

The project builds upon several earlier initiatives developed within French universities, including SoVisu (University of Toulon), the Expert Finder System (Paris 1 Panthéon-Sorbonne University), and BiblioLabs (Paris-Saclay University). These existing tools are being transformed into reusable software components that can be combined according to institutional needs.

Technically, CRISalid is based on a modern architecture that combines automated data harvesting, knowledge graph technologies, and artificial intelligence–assisted enrichment processes. Research information is collected from multiple trusted sources, including HAL, OpenAlex, Scopus, ORCID, scanR, OpenEdition, and CAIRN. Additional information can be imported from institutional directories, doctoral information systems, and other validated repositories. The system also relies on disciplinary vocabularies and authority files whenever possible in order to improve metadata quality and semantic interoperability.

At the core of the architecture lies an institutional knowledge graph capable of linking researchers, publications, projects, organizations, and other research entities. This approach enables richer representations of scientific activity than traditional database structures and facilitates the development of new services for discovery, reporting, evaluation, and research visibility.

One of the most distinctive characteristics of CRISalid is its decentralized governance model. Unlike centralized national platforms, CRISalid allows each institution to deploy, configure, and manage its own implementation while benefiting from a shared technological and conceptual framework.

This approach reflects the realities of the French research system, which is characterized by institutional diversity, organizational autonomy, and complex governance arrangements. Rather than requiring institutions to abandon their existing tools and workflows, CRISalid seeks to integrate them into a broader interoperable ecosystem. As a result, institutions retain control over their data and local practices while simultaneously benefiting from shared developments and community support.

The project also introduces a second level of decentralization at the individual level. Researchers are encouraged to participate directly in the validation and enrichment of their own data, thereby improving data quality while reducing the need for centralized administrative intervention. This researcher-centered approach aligns with broader developments in open science and research assessment, where transparency, accountability, and community engagement are increasingly valued.

From an operational perspective, modularity represents another major advantage. Institutions may adopt individual components according to their priorities and resources rather than implementing an entire system at once. This flexibility lowers barriers to adoption and facilitates gradual deployment.

Beyond its technical architecture, CRISalid is significant because it addresses several of the structural challenges that have historically limited the development of research information systems in France.

First, it promotes interoperability through the use of shared standards, persistent identifiers, authority files, and open interfaces. By connecting rather than replacing existing systems, it provides a practical pathway toward greater integration within a fragmented environment.

Second, CRISalid contributes to digital sovereignty by reducing dependence on proprietary commercial solutions. Its open-source model gives institutions greater control over their data, software, and development priorities while encouraging transparency and long-term sustainability.

Third, the project places particular emphasis on data quality. Through the combination of automated harvesting, authority control, disciplinary vocabularies, and researcher participation, CRISalid seeks to improve the accuracy, completeness, and reliability of research information. These features are especially important in a context where data quality remains one of the major weaknesses of many existing systems.

Finally, CRISalid demonstrates that coordination does not necessarily require centralization. By combining local autonomy with shared infrastructures and standards, it offers a model that appears particularly well adapted to the institutional complexity of the French research system. In this respect, it may represent not only a viable alternative to centralized systems but also a possible foundation for the gradual emergence of a more coherent and interoperable national research information ecosystem.

Although the project remains in development and its long-term adoption cannot yet be assessed, CRISalid is currently one of the most ambitious efforts to reconcile interoperability, institutional diversity, and researcher engagement within the French research information landscape.

8 Complementary National Initiatives

The development of research information systems in France cannot be understood solely through the analysis of institutional platforms and organizational information systems. Over the last decade, a broader ecosystem of national services has emerged to support the discovery, dissemination, monitoring, and analysis of research activities. These initiatives reflect the growing importance of open science, data sharing, and evidence-based research policy. While they do not necessarily meet the definition of a research information system in a strict sense, they increasingly interact with CRIS and contribute to the circulation of research information across the national research landscape.

Together, these platforms illustrate a distinctive feature of the French approach: rather than building a single centralized research information system, France has progressively developed a network of complementary infrastructures that perform specific functions while sharing common data sources, identifiers, and standards.

8.1 scanR

Among these initiatives, scanR occupies a particularly important position. Developed by the Ministry of Higher Education and Research and launched in 2016, scanR is a national discovery platform designed to provide a comprehensive view of French research and innovation activities. Built entirely on open data sources, it aggregates and interconnects information on researchers, organizations, projects, funding, publications, patents, and other research-related entities (Jeangirard, 2024).

The platform collects information from a wide range of sources, including ANR, Hcéres, Software Heritage, HAL, patent databases, institutional repositories, and other open infrastructures. Through data cleaning, enrichment, deduplication, and linking processes, scanR creates an interconnected representation of the French research ecosystem. Persistent identifiers play a central role in this process, enabling the association of researchers, institutions, publications, and projects across different data sources.

Unlike traditional CRIS, scanR does not support institutional workflows, project management, or administrative reporting. Instead, its primary objective is discovery, exploration, and visibility. Through interactive visualizations, maps, graphs, and search functionalities, it enables users to explore research networks, identify expertise, analyze collaborations, and better understand the structure of the national research system.

In this respect, scanR should be viewed as complementary rather than alternative to institutional CRIS. It provides an open and publicly accessible layer of information that enhances transparency and visibility while relying on data generated by a wide variety of institutional systems. More broadly, scanR demonstrates how open data and artificial intelligence can be used to build large-scale research information services without relying on proprietary data sources.

8.2 Monitoring Tools and Research Information Ecosystems

Beyond scanR, several other national initiatives contribute to what can increasingly be described as a French research information ecosystem. These platforms focus less on information management than on monitoring, analysis, and policy support, yet they rely heavily on the same data infrastructures and identifiers that underpin research information systems.

A particularly significant example is the Open Science Barometer (BSO), which monitors the development of open science practices in France. Drawing on data from repositories, bibliographic databases, and identifier infrastructures, the BSO produces indicators on open access publications, research data sharing, and software dissemination (Bracco, Jeangirard, L'Hôte, & Romary, 2025). Although it is not designed as a research information system, it depends on the availability, quality,

and interoperability of research information and simultaneously contributes new data and indicators to the broader ecosystem.

Other services, such as CurieXplore and #dataESR, further extend this landscape by providing analytical tools, statistical resources, and international comparative data on higher education, research, and innovation. Together, these initiatives support evidence-based decision-making by researchers, institutions, funders, and policy-makers.

The emergence of these platforms highlights an important evolution in the role of research information infrastructures. The traditional distinction between research information systems, monitoring tools, repositories, and open science infrastructures is becoming increasingly blurred. Data generated by one system is reused by others; identifiers link information across platforms; and indicators produced for monitoring purposes feed institutional management and evaluation processes.

Consequently, research information in France is increasingly produced, managed, and reused within an interconnected ecosystem rather than within isolated systems. This evolution suggests that the future of research information management may depend less on the development of a single dominant platform than on the strengthening of connections between a diverse set of complementary infrastructures. In this ecosystem, interoperability, openness, and data quality become more important than organizational boundaries or technological architectures.

9 Opportunities for Future Development

Although the French research information landscape remains fragmented and heterogeneous, several ongoing developments suggest that research information systems will play an increasingly important role in the governance of research. The growing demand for efficiency, accountability, visibility, and interoperability is creating new incentives for institutions to invest in more sophisticated information infrastructures. At the same time, national and international policy initiatives are encouraging greater coordination between systems, data sources, and stakeholders.

Rather than moving toward a single national platform, the future of French CRIS is likely to be shaped by a combination of administrative simplification, evolving funding mechanisms, innovation policies, and international integration. Together, these factors create opportunities for strengthening the role of research information systems as strategic infrastructures for research management and policy-making.

9.1 Administrative Simplification

One of the strongest drivers of CRIS development is the growing recognition that researchers spend a significant amount of time on administrative tasks. In recent years, reducing this burden has become an explicit objective of French research policy. Government reports and institutional reviews have repeatedly emphasized the need to simplify reporting procedures, reduce duplicate data entry, and improve the circulation of information between research units, institutions, and funding bodies.

Research information systems can contribute directly to these objectives. By automating data collection, integrating information from multiple sources, and enabling the reuse of verified information, CRIS can significantly reduce the workload associated with project management, reporting, evaluation, and compliance procedures. The national strategy based on persistent identifiers reflects this ambition, particularly through the implementation of the “tell us once” principle, according to which information should be entered only once and subsequently reused across multiple systems.

Beyond efficiency gains, administrative simplification also has strategic implications. By reducing the time devoted to bureaucratic processes, institutions can allow researchers and support staff to focus more on research activities, innovation, and scientific collaboration. In this respect, CRIS are

increasingly viewed not merely as management tools but as instruments for improving the overall research environment.

9.2 Project-Based Funding and Strategic Management

The growing importance of project-based funding constitutes a second major driver of CRIS development. Research activities are increasingly financed through competitive grants, collaborative projects, performance agreements, and targeted funding schemes. As a result, institutions face growing demands for monitoring, accountability, and impact assessment.

These developments require more sophisticated information systems capable of tracking projects throughout their lifecycle, from proposal preparation and funding acquisition to implementation, reporting, and evaluation. Institutions need reliable information on budgets, partnerships, scientific outputs, and societal impacts to support strategic decision-making and demonstrate the effectiveness of public investment in research.

CRIS can provide the necessary infrastructure for these activities. By integrating information on projects, researchers, funding sources, publications, and other outputs, CRIS support evidence-based management and facilitate the production of indicators and reports. They also enable institutions to identify strengths, monitor performance, and align research activities with strategic priorities.

The increasing emphasis on research assessment reform and responsible evaluation further reinforces this trend. As institutions move beyond traditional bibliometric indicators, CRIS are expected to play a key role in collecting and contextualizing a broader range of information on research activities and impacts.

9.3 Industrial Partnerships and Innovation Ecosystems

CRIS also have the potential to strengthen collaboration between academia and industry. In recent years, innovation policies have increasingly emphasized the role of universities and research organizations as key actors within regional and national innovation ecosystems. Effective collaboration requires the ability to identify expertise, map research capabilities, and facilitate connections between researchers, companies, and public stakeholders.

CRIS can support these objectives by providing comprehensive and up-to-date information on research projects, scientific outputs, technological expertise, patents, and collaborative networks. Expert-finding systems, research portals, and institutional knowledge graphs can make research competencies more visible and accessible to external partners, thereby facilitating technology transfer and collaborative innovation.

This function is particularly relevant in regions where universities, research organizations, and companies are closely interconnected. By improving the visibility of research assets and collaborative opportunities, CRIS can contribute to regional development strategies and strengthen the role of research institutions within broader innovation ecosystems (Dumoulin & Malkov, 2024).

Moreover, as expectations regarding societal impact continue to grow, research information systems may increasingly serve as tools for documenting and demonstrating the economic, social, and environmental contributions of research activities beyond traditional academic outputs.

9.4 International and European Integration

A final opportunity arises from the increasing internationalization of research. Scientific collaboration, funding mechanisms, and evaluation frameworks are becoming progressively more international, creating stronger incentives for interoperability and data exchange across institutional and national boundaries.

European initiatives are particularly influential in this respect. The growing importance of the European Research Area, the European Open Science Cloud (EOSC), and European university alliances is encouraging institutions to align their information systems with international standards and practices. Participation in these initiatives requires institutions to exchange information efficiently, adopt persistent identifiers, and ensure compatibility with shared infrastructures.

European university alliances provide a particularly relevant example. These alliances bring together hundreds of institutions across Europe and increasingly seek to develop shared services, common indicators, and integrated information environments. Such developments place interoperability at the center of institutional strategies and create strong incentives for the adoption of standards, identifiers, and data governance frameworks (de Castro, Orel, & Schöpfel, 2025; Orel, de Castro, Dvorak, & Schöpfel, 2025).

At the same time, international research projects increasingly rely on collaborative information infrastructures capable of connecting researchers, organizations, publications, datasets, and funding information across countries. Examples such as WheatVIVO illustrate how research information systems can facilitate international cooperation and support the creation of thematic knowledge networks on a global scale (Alaux, 2024).

Taken together, these developments suggest that the future evolution of French CRIS will be driven not only by domestic needs but also by international expectations. In this context, interoperability, openness, and alignment with global standards are likely to become essential conditions for participation in the international research ecosystem.

Overall, these four drivers—administrative simplification, project-based funding, innovation partnerships, and international integration—provide strong incentives for the continued development of CRIS in France. While they are unlikely to lead to a single national CRIS, they are likely to accelerate the emergence of a more connected, interoperable, and strategically significant research information ecosystem.

10 Concluding Remarks

The French research information system landscape is characterized by a paradox: a highly developed research ecosystem supported by a fragmented and heterogeneous set of information systems. This fragmentation reflects the structural complexity and autonomy of French institutions but also generates significant challenges in terms of efficiency, interoperability, and visibility.

Recent developments suggest a shift toward a more coordinated approach, based not on centralization but on interoperability. Persistent identifiers, open data infrastructures, and modular systems such as CRISalid offer promising pathways for connecting existing systems while preserving institutional diversity.

Rather than converging toward a single national CRIS, France is likely to maintain a decentralized model in which interoperability serves as the primary organizing principle. This approach aligns with both the structural characteristics of the French research system and broader international trends.

Ultimately, the future of CRIS in France will depend on the ability of stakeholders to balance autonomy and coordination, leveraging technological innovations and collaborative frameworks to build a more integrated and efficient research information ecosystem.

In this perspective, the French case illustrates a broader evolution in research information management: the objective is increasingly not to create a single, monolithic system, but to build a federated ecosystem of interoperable infrastructures. The challenge is therefore less technological than organizational and political. It requires sustained collaboration between universities, research organizations, ministries, infrastructure providers, and the research community itself.

If successful, such an ecosystem could provide significant benefits: reduced administrative burdens, improved data quality, enhanced visibility of research activities, and stronger support for evaluation, strategic steering, and international collaboration. Conversely, failure to strengthen interoperability and shared governance mechanisms would risk perpetuating fragmentation, duplication of effort, and uneven access to reliable research information.

France thus stands at a transitional moment. The combination of persistent identifiers, open science policies, collaborative initiatives such as CRISolid, and growing European integration creates favorable conditions for progress. Whether these opportunities will lead to a genuinely coherent research information environment will depend on the capacity of stakeholders to transform fragmented systems into connected and sustainable infrastructures that serve both institutional needs and the broader research community.

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