

# The Role of CRIS in Advancing FAIR and Open Science Practices

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# From Open Access to Open Science

A 20-year journey at Iscte

Open Science at Iscte has evolved from a long-standing Open Access commitment into a comprehensive, institution-wide framework: **connecting research data, publications, and assessments in a unified infrastructure.**

Each milestone built upon the last, creating an interoperable ecosystem now fully aligned with OpenAIRE and national infrastructures.

**2006**

Institutional  
Repository  
launched

**2009**

Open Access  
policy

**2013**

CRIS – IR  
linked

**2015**

OA policy  
updated

**2023**

RDM policy  
approved

**2025**

Zenodo – CRIS  
linked

# Why Does This Matter?

The challenge of connected research outputs

## **Research institutions face three core challenges in advancing Open Science:**

- Research outputs scattered across Data Management Platforms, CRIS, and Institutional Repositories with no shared metadata
- Compliance with FAIR principles and funder mandates requires linking data, publications, and projects
- Demonstrating Open Science impact for responsible research assessment demands consolidated reporting



# How Publications Flow Through the System

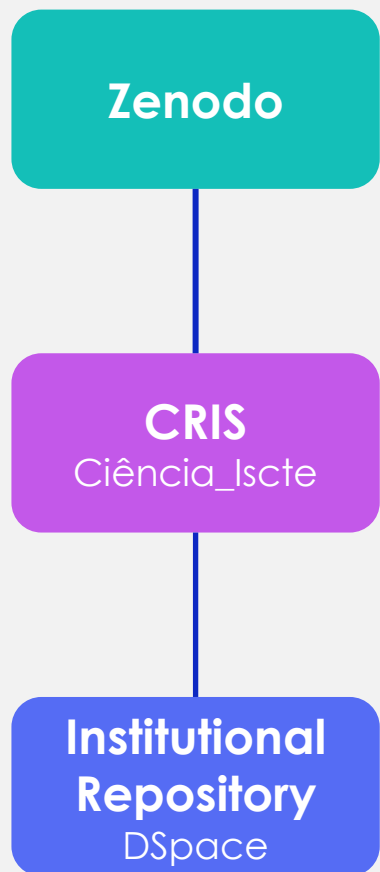
From author deposit to national and international aggregation

## → Author & CRIS

1. Author uploads publication PDF in Ciência\_Iscte along with the corresponding metadata (usually imported from external service based on DOI).
2. Author also selects permitted version per publisher policy, which allows the “send to repository” validation workflow to begin by the Library.

## → Library & IR

3. Library validates metadata, verifies persistent identifiers (DOIs, ORCIDs), and confirms deposited version is appropriate according to policy.
4. Record is published in Institutional Repository and automatically harvested by RCAAP and OpenAIRE.



## The Zenodo → CRIS → IR Architecture

An integrated system landscape for FAIR compliance



Ciência\_Iscte (CRIS) sits at the centre, connecting three key systems via automated integrations and human curation workflows.



Researchers deposit data once in Zenodo; the CRIS imports it via REST API, enriches metadata, and exports to the Institutional Repository.

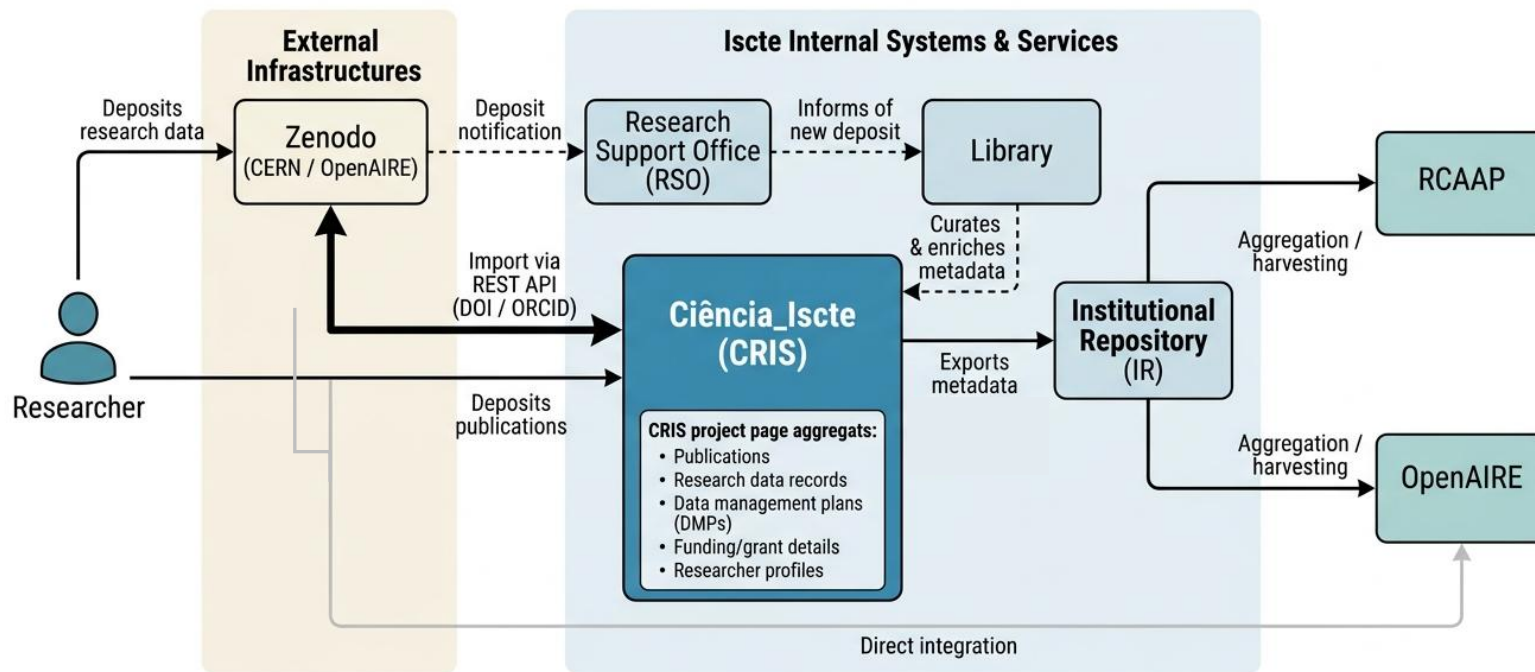


This ensures data consistency across all systems

# How Research Data Flows Through the System

One-time entry, multi-system propagation

## Zenodo → CRIS → Institutional Repository Integration Architecture



## ➔ Zenodo → CRIS → IR

1. Researcher deposits dataset on Zenodo; RSO receives automatic notification and informs the Library after compliance check.
2. Library imports record into Ciência\_Iscte via DOI or ORCID using the Zenodo REST API.
3. Library/Project Manager enriches metadata: links to projects, publications, SDGs, FOS classifications, and DMP.
4. CRIS exports metadata record to Institutional Repository. Data entered once, propagated without modification.

# The CRIS Project Page: More Than Administration

A strategic hub aggregating all research outputs from a single project

## Datasets

| Related Research Data Records |                                                                                 |          |                  |
|-------------------------------|---------------------------------------------------------------------------------|----------|------------------|
| DOI                           | Title                                                                           | Type     | Publication Date |
| 10.5281/zenodo.15488563       | FHIR IG - XpanDH Project Common IG: Initial release                             | Software | 2025-05-22       |
| 10.5281/zenodo.15488582       | FHIR IG: XpanDH Laboratory Results: Initial release                             | Software | 2025-05-22       |
| 10.5281/zenodo.15488588       | FHIR IG: XpanDH Medication [e]Prescription and [e]Dispensation: Initial release | Software | 2025-05-22       |
| 10.5281/zenodo.15488586       | FHIR IG: XpanDH Patient Summary: Initial release                                | Software | 2025-05-22       |
| 10.5281/zenodo.15041095       | XpanDH X-Bundle assets                                                          | Dataset  | 2025-03-17       |

| Project Files        |                               |
|----------------------|-------------------------------|
| File Type            | Description                   |
| Data management plan | 20230427_XpanDH_D1.3_v1.0.pdf |

## DMPs

| Project Fundings         |             |              |                                      |                         |                        |            |            |
|--------------------------|-------------|--------------|--------------------------------------|-------------------------|------------------------|------------|------------|
| Reference/Code           | Funding DOI | Funding Type | Funding Program                      | Funding Amount (Global) | Funding Amount (Local) | Begin Date | End Date   |
| HORIZON-HLTH-2022-IND-13 | --          | Contract     | European Commission - Horizon Europe | 1972260.75              | 193176.25              | 2023-01-01 | 2024-12-31 |

| Publication Outputs |                          |                                                                                                                                                                                                  |
|---------------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Year                | Publication Type         | Full Reference                                                                                                                                                                                   |
| 2025                | Review article           | Martins, D., Lewerenz, S., Carmo, A. & Martins, H. (2025). Interoperability of telemonitoring data in digital health solutions: A scoping review. <i>Frontiers in Digital Health</i> . 7         |
| 2024                | Scientific journal paper | Lewerenz, S., Martins, D. & Martins, H. (2024). Assessing cross-border telemedicine data exchange in the European Union: A call to action. <i>Telemedicine and e-Health</i> . 30 (11), 2759-2762 |

## Fundings and Publications



# Ensuring FAIR Compliance Across the Chain

How Zenodo-CRIS-IR maps to the FAIR principles



**F – Findable:** DOIs assigned to all outputs; ORCIDs link records to researchers; project pages aggregate everything in one discoverable location.



**A – Accessible:** All outputs available via the Institutional Repository, harvested by RCAAP and OpenAIRE under open licences.



**I – Interoperable:** Zenodo REST API, standard metadata schemas (Dublin Core, OpenAIRE guidelines), and CRIS-IR OAI-PMH harvesting.



**R – Reusable:** Rich metadata (FOS, SDGs, project links, licensing), version control, and data management plans ensure reusability.

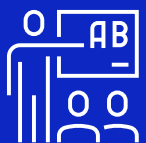


The CRIS project page is the single point of aggregation: publications, datasets, DMPs, and funding details, all linked.



One-time data entry in Zenodo propagates consistently to the CRIS and the Institutional Repository without modification.

# Responsible Research Assessment



**Internal reporting:** Research centre staff access the CRIS backoffice to generate comprehensive reports on all project outputs, reducing administrative burden through automated data aggregation.



**Open Science indicators:** Iscte embeds DMPs, dataset sharing, and OA publications into formal evaluation regulations, giving researchers credit for open practices.



**Incentive alignment:** Formal recognition for open practices links individual career advancement to Open Science objectives, driving real behavioural change, especially for early-career researchers.



# Embedded in a Broader Framework

Aligned with national and international Open Science initiatives

## → Institutional

Strategic plan and policy ecosystem embedding **Open Science** across all institutional activities.

Research Data Management and Sharing Policy (2023) operationalising **FAIR principles**.

Defined workflows connecting Library, RSO, ISDS, and Rectorate.

## → National

**FCT / FCCN**: national funding and digital services agency providing infrastructure and mandates.

**Re.Data consortium**: national research data collaboration.

**RCAAP**: national open access repository aggregator.

## → International

**CoARA**: Coalition for Advancing Research Assessment: responsible metrics and evaluation reform.

**EOSC**: European Open Science Cloud: shared infrastructure for research data.

**OpenAIRE & HREA**: interoperability and recognition of research excellence.



# What Can Others Learn from Iscte?

Three transferable lessons for Open Science infrastructure

The Zenodo–CRIS–IR architecture presented here offers a replicable model for institutions seeking to strengthen their Open Science infrastructure while ensuring compliance with national and international requirements.

Success depends on three key ingredients that any institution can adopt:

1

**Build on what you have**



**Reuse, don't replace**

2

**CRIS as strategic hub**



**One page, all outputs**

3

**Incentives drive change**



**Open Science in evaluation**



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