CERIF: An Introduction

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Outline

- CRIS systems
- Common European Research Information Format = CERIF
- Research Projects in CERIF
- CERIF in CRIS information interchange
- CERIF Refactoring
Glossary

• CRIS = Current Research Information System
  of current interest or relevance

• RIM = Research Information Management

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euroCRIS (www.eurocris.org):
A not-for-profit association
of RIM professionals and CRIS experts.
188 institutional members, ≥330 total
Western Europe mostly
CRIS Goals

• Manage research
  – Throughout its all phases

• Keep record

• Assess and improve
  – Impact of the research

• Demonstrate
  – Relevance of the institution
    or funding agency
    or research infrastructure

• Support decisions
  – National, regional, international levels
Current Research Information System

**Persons**
- Researchers
- Visiting staff
- Librarians
- Doctoral students
- Administrators
- Management

**Organizations**
- Contractual research
  - Student research projects
- National projects
  - H2020 & FP projects
- Internal organizational structure
- Facility operators
- Funders
- Collaborating orgs
- Publishers
- Patent offices
- Industry partners

**Research Outputs**
- Journal articles
- Conference papers
- Book Chapters
- Monographs
- Research datasets
- Research reports
- Research software
- Patents
- Research reports
- Research datasets
- Research software

**Research Projects & Funding**
- National projects
- H2020 & FP projects
- Contractual research
CERIF = Common European Research Information Format
CERIF: Interlinked information

Person (Researcher) → Project
- Principal investigator originates from
- Staff member

Publication → Project
- Author
- Resulted in

Organization Unit → Project
- Author’s affiliation
- Executed at

Project → Organization Unit
- Executes
Project Entity Definition in CERIF

A temporary endeavor undertaken to create a unique product, service or result.

Source: the Project Management Institute,

https://www.pmi.org/about/learn-about-pmi/what-is-project-management
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In the research information domain, one typically tracks:
(1) research projects, where the result is an addition to the body of knowledge of the mankind,
(2) technology development projects, where the result is a particular technology or product,
(3) innovation projects, where the result is an improvement of a product or process, and
(4) projects that create or enhance infrastructure for research, technology development or innovation.
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Depending on the scope one can also track finer levels of granularity: stages, work packages, sometimes even down to individual tasks. All such activities are also modelled using the Project entity and linked using the recursive link relationship.
Finer levels of granularity

WP1 has part in Main Project.

Part is part of Main Project.
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The Project entity only captures details of the project scope and plan. Information about the resources needed to execute the project such as the funding (i.e., the grants received), the people and organisations involved, the supporting infrastructures, the outputs produced, etc. is contained in separate entities (the Funding entity, the Person entity, the OrgUnit entity, the infrastructure entities, the result entities respectively) and is linked to the Project.
The P-O-P-F (Project–Organisation–Person–Funding) Profile of CERIF

The entry point into the profile: the notice about funding being awarded to a project proposal.

The project that is awarded the funding.

The chain up through the organisational hierarchy to the level of legal entity: used in the cases where the funder is a division of a larger organisation, e.g., the divisions of NWO (see http://www.nwo.nl/en/about-nwo/organisation/nwo-domains).

The chain through the organisational hierarchy up to the level of institution: used in the cases where the project participant is a unit in a larger organisation. E.g., a department of a university links to the faculty it is part of, and the faculty links to the university.

The Funding organisation:

If necessary, some other organisation units (e.g., teams) are affiliated with, again with a possible chain up the organisational hierarchy. At whatever level the organisation can be a reference (just the internal identifier) to an organisation mentioned in another context, rather than the full record. E.g., the Principal Investigator of the project is member of a research group that is part of a participating department.

Legend:

? - optional
- any number of linked objects
* - multilingual
Projects in Institutional CRISs

• Typically entered before a grant application is submitted
  – To seek internal approval for the grant application

• Questions:
  – What projects we submitted?
  – What projects were approved (for funding)?
  – What projects were successfully executed?
Projects in Funder CRISs

- Recorded with a grant application received
- The ex-ante evaluation
- The contracting process
- Project monitoring
- Interim and final reporting
- The ex-post evaluation
Projects in Research Infrastructures’ CRISs

• An external research organization wants to use our facility/equipment/service
• Decision process
• Monitoring
• Collecting the publications and other research outputs
Projects vs Funding

• Funding is a resource Projects request
• Funding is also the contract
• Under “Project” people typically mean “funded projects”
The rest of CERIF

• Research Outputs: Publications, Patents, Products (Datasets, Software, ...)
• Events (Conferences, Workshops, committee meetings, ...)
• Research Infrastructures (Facilities, Equipment, Services)
• Expertise & Skills, Awards

... all interlinked
CERIF-XML exchange formats  
(based on XML Schema)

**Original**

1:1 with the ER structure

Only uses embedding for multilingual texts

→ Many foreign key relationships

→ Takes several API requests to get a presentable form of an object

**2nd Generation**

Template XML Schema → adaptation

Profiles: Useful subsets of CERIF for specific research information exchange scenarios

1. Specify a subset of CERIF entities & attributes
2. Fix semantic vocabularies to use
3. Add integrity constraints

Ex.: OpenAIRE Guidelines for CRIS Managers 1.0. (2015)
DOI 10.5281/zenodo.17065

DOI 10.5281/zenodo.1298649
OpenAIRE CERIF Subset
A Research Graph:
The example set from the OpenAIRE Guidelines for CRIS Managers 1.1
CERIF Refactoring: Goals

1. Keep the strong features of current CERIF
   a. Multilinguality

2. Take away the perceived complexity of CERIF
   a. Emphasize the conceptual model
   b. Improve documentation

3. Modernize CERIF
   a. Change the modeling notation
   b. Adapt CERIF for usage in APIs and for Linked Open Data
   c. Modern serialization formats
   d. Allow for systematic provenance tracking and verifiable credentials

4. Involve the community in further development of CERIF
   a. Modularity
   b. Open source sw development practices

More on the project in our CRIS 2022 presentation --&gt; http://hdl.handle.net/11366/1963
Conclusions

CERIF can express a rich set of research information
Funded projects are one of the cornerstones of CERIF
OpenAIRE Guidelines for CRIS Managers as a major example of using CERIF for communication between CRISs