

# CERIF: An Introduction

**Jan Dvořák**

euroCRIS Board member & CERIF TG Lead

researcher, Library and Information Science, Charles University

CRIS analyst & maintainer, Czech Technical University

[jan.dvorak@ff.cuni.cz](mailto:jan.dvorak@ff.cuni.cz)

 <https://orcid.org/0000-0001-8985-152X>

# 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
- 

euroCRIS ([www.eurocris.org](http://www.eurocris.org)):

A not-for-profit association

of RIM professionals and CRIS experts.

188 institutional members, ≥330 total

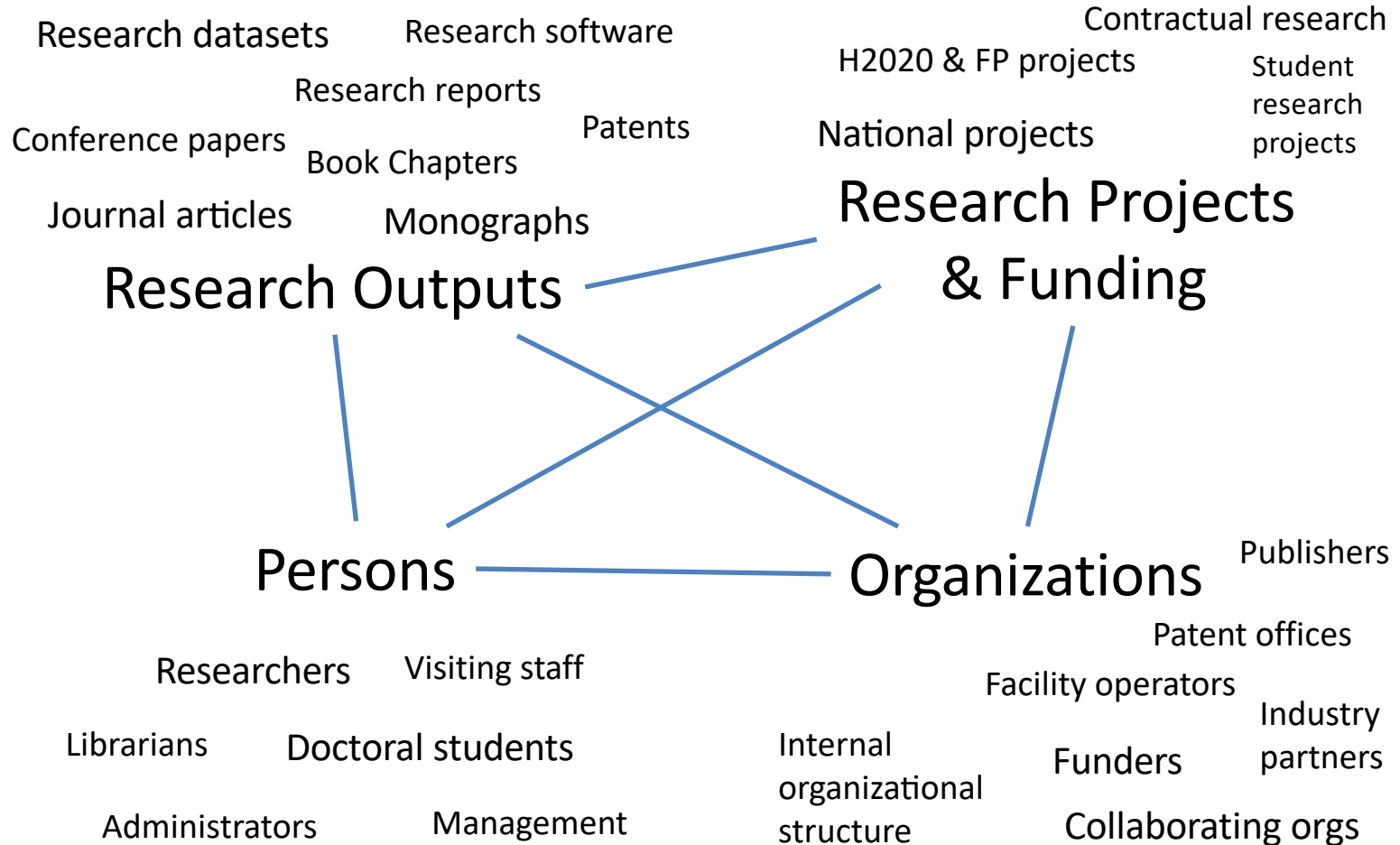
Western Europe mostly

Est. 2002

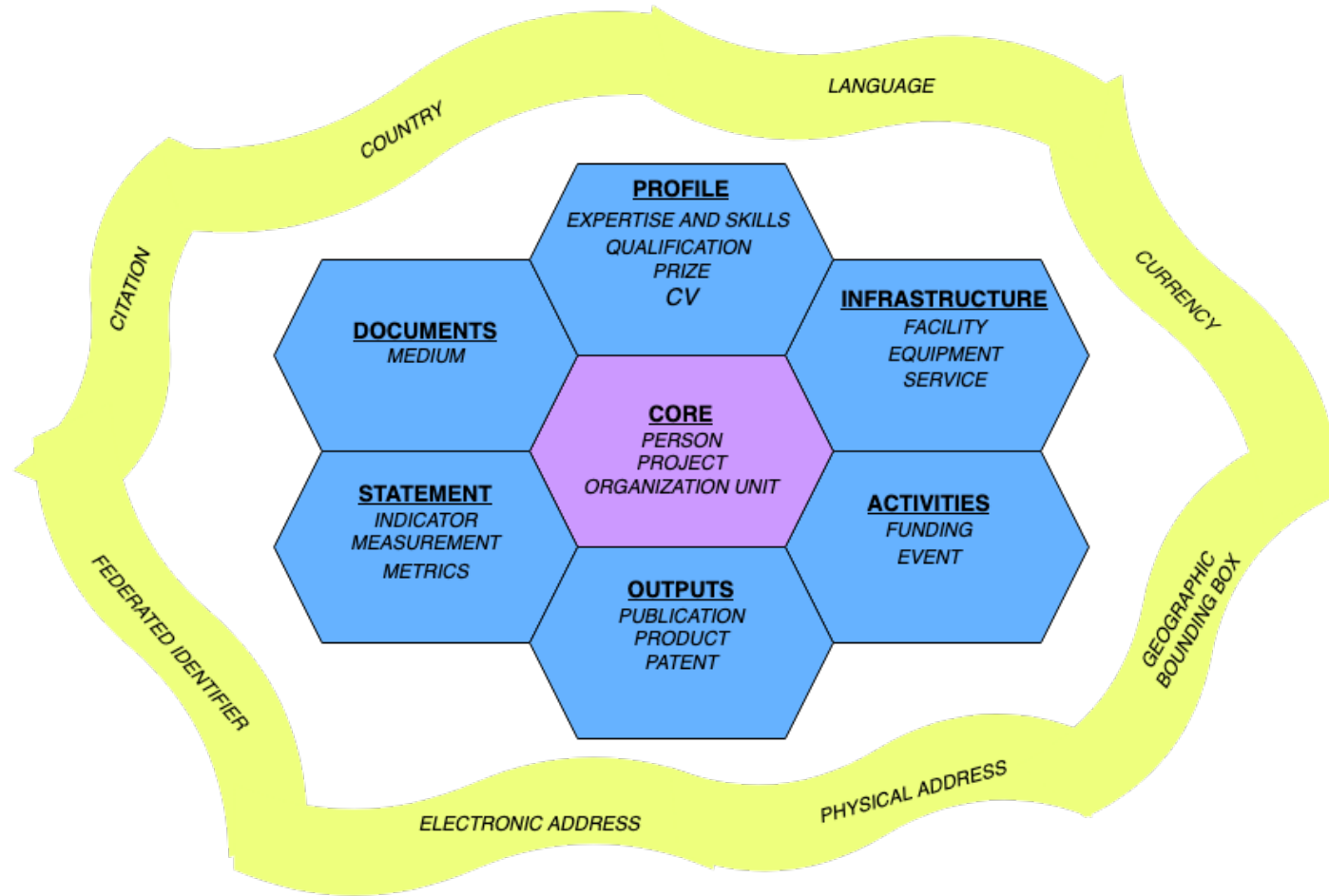
# CRIS Goals

- 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

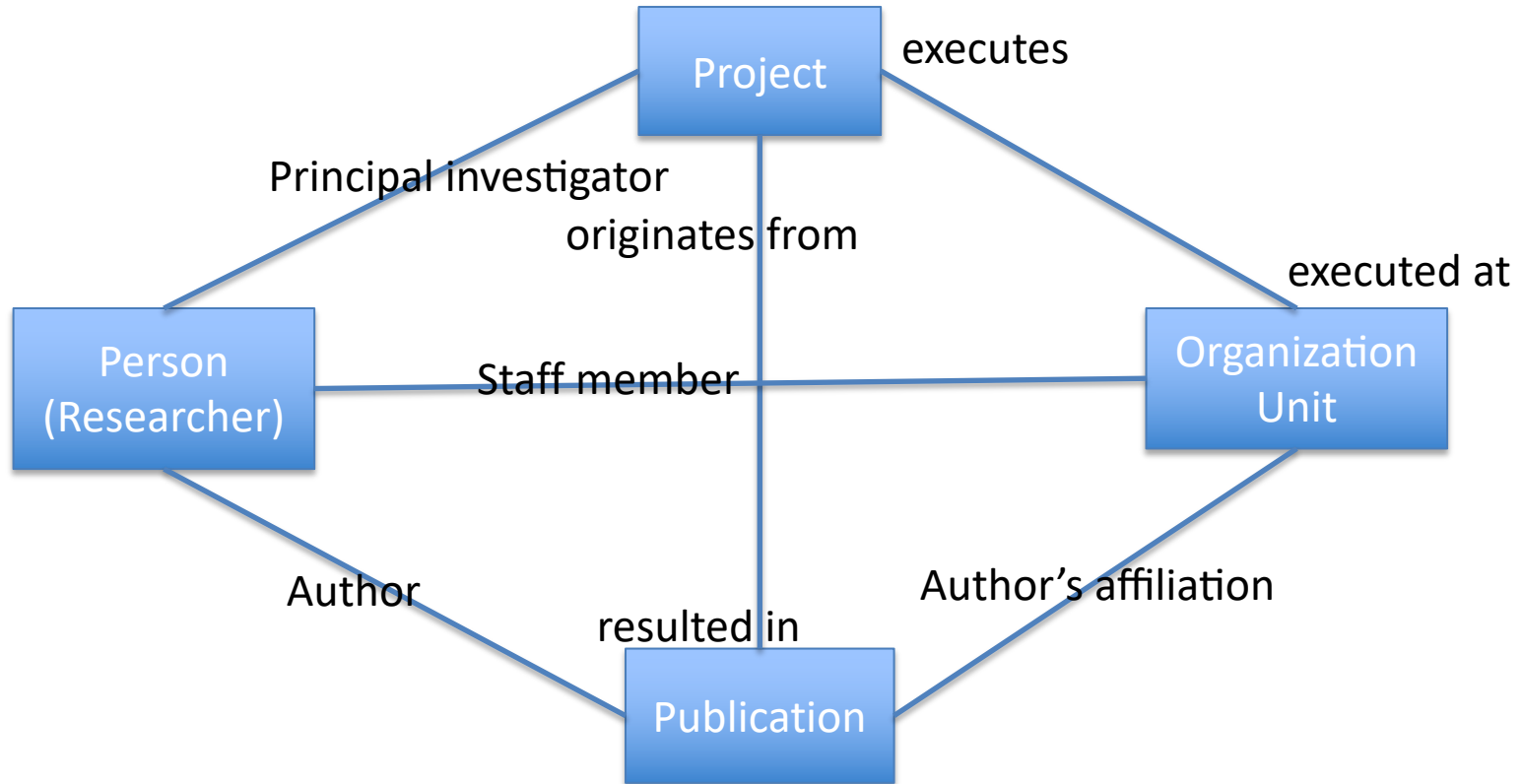
# Current Research Information System



# CERIF = Common European Research Information Format



# CERIF: Interlinked information



## 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>



# 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>

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.

# Project Entity Definition in CERIF

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

Source: the Project Management Institute,

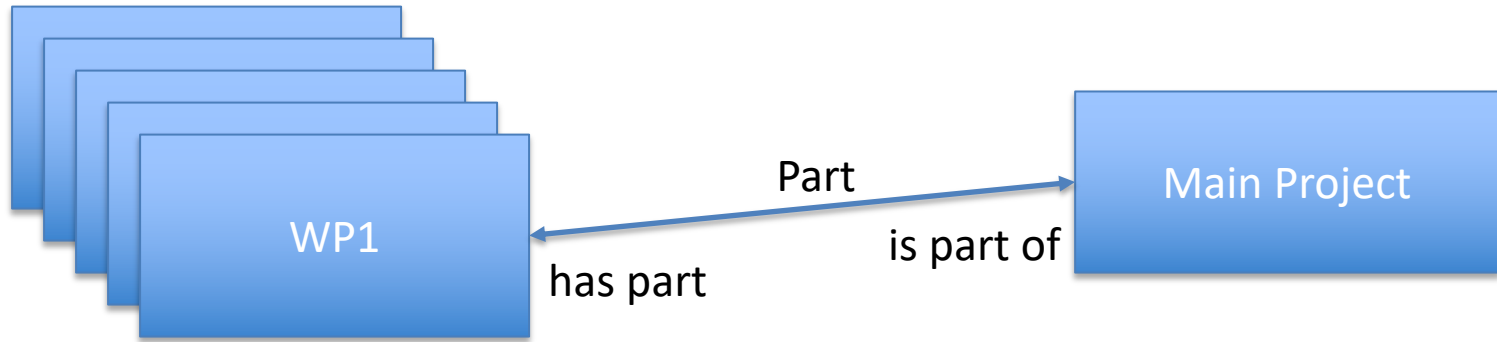
<https://www.pmi.org/about/learn-about-pmi/what-is-project-management>

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.

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



# 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>

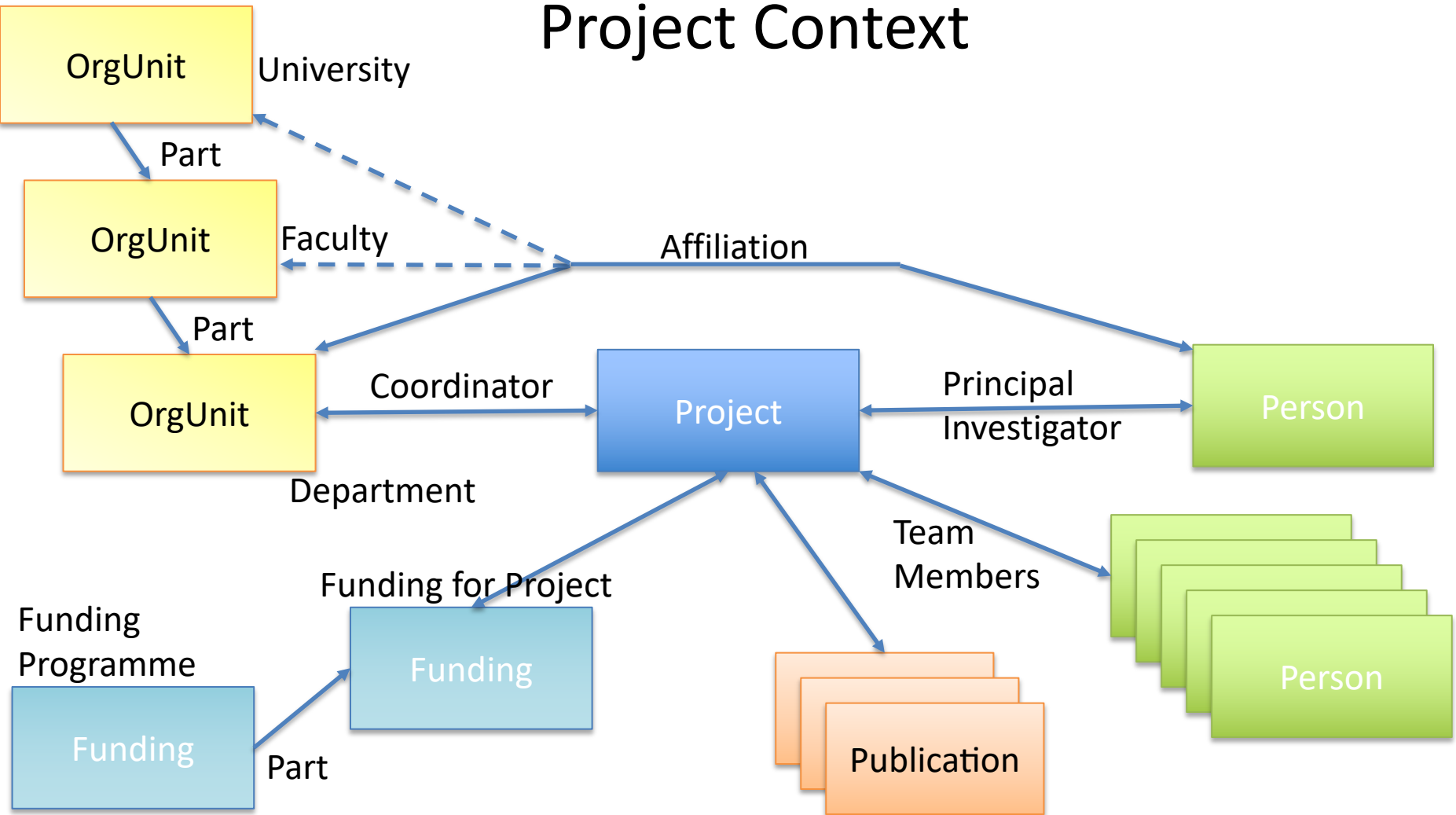
In the research information domain, one typically tracks:

- (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.

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.

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**.

# Project Context





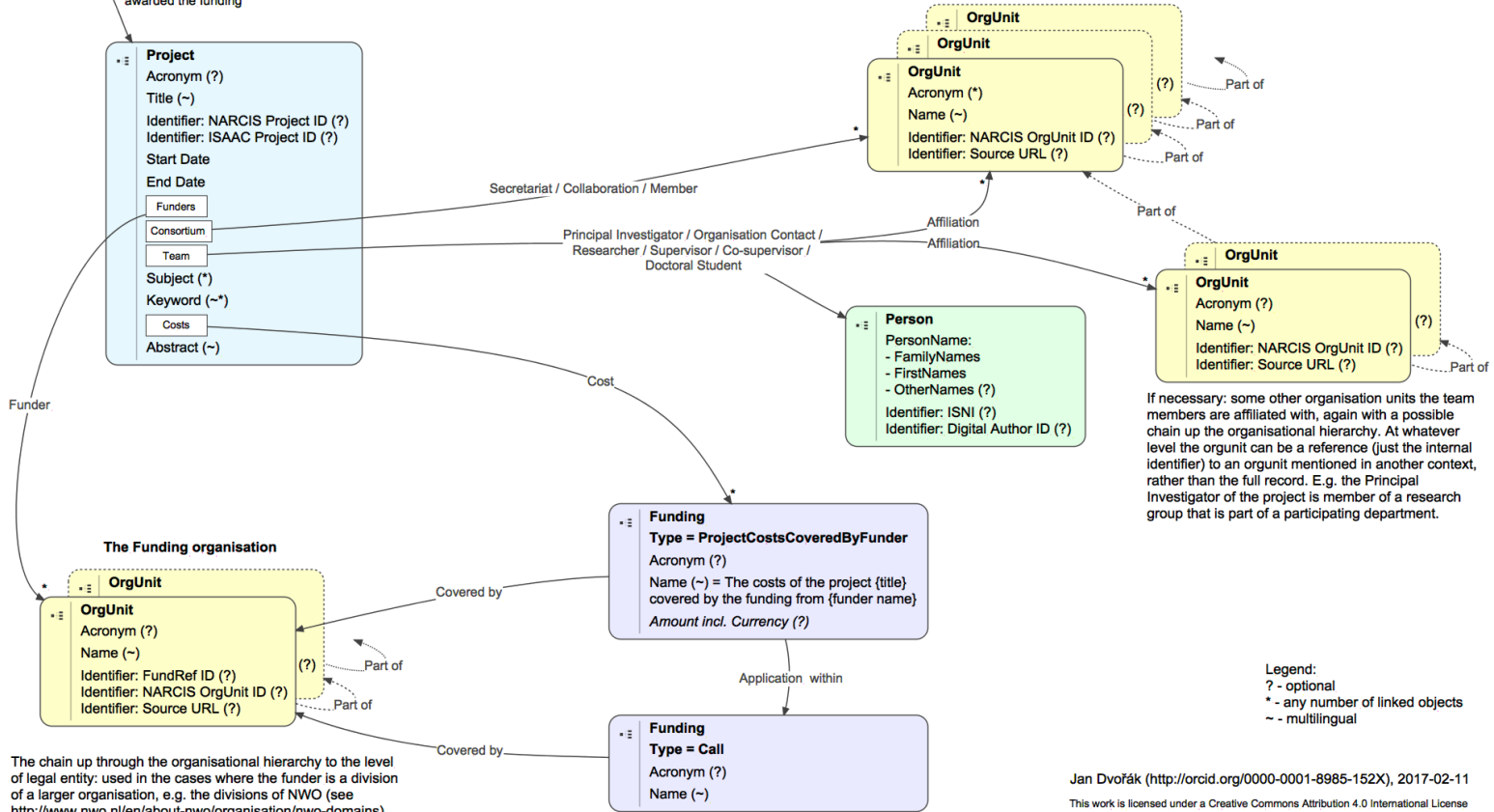
### The P-O-P-F (Project–Organisation–Person–Funding) Profile of CERIF



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 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 a university links to the faculty it is part of, and the faculty links to the university.



The chain 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>)

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

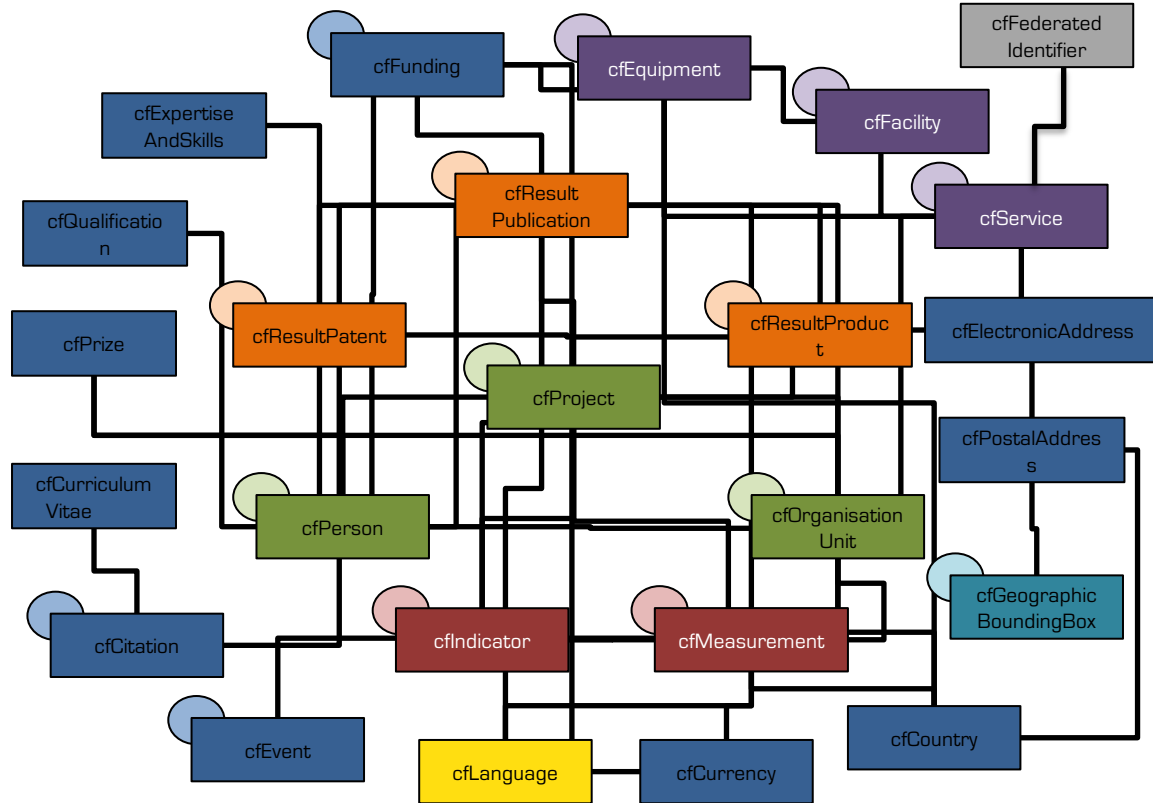
# Projects vs Funding

- 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

Ex.: OpenAIRE Guidelines for CRIS Managers 1.0. (2015)  
DOI [10.5281/zenodo.17065](https://doi.org/10.5281/zenodo.17065)

## 2nd Generation

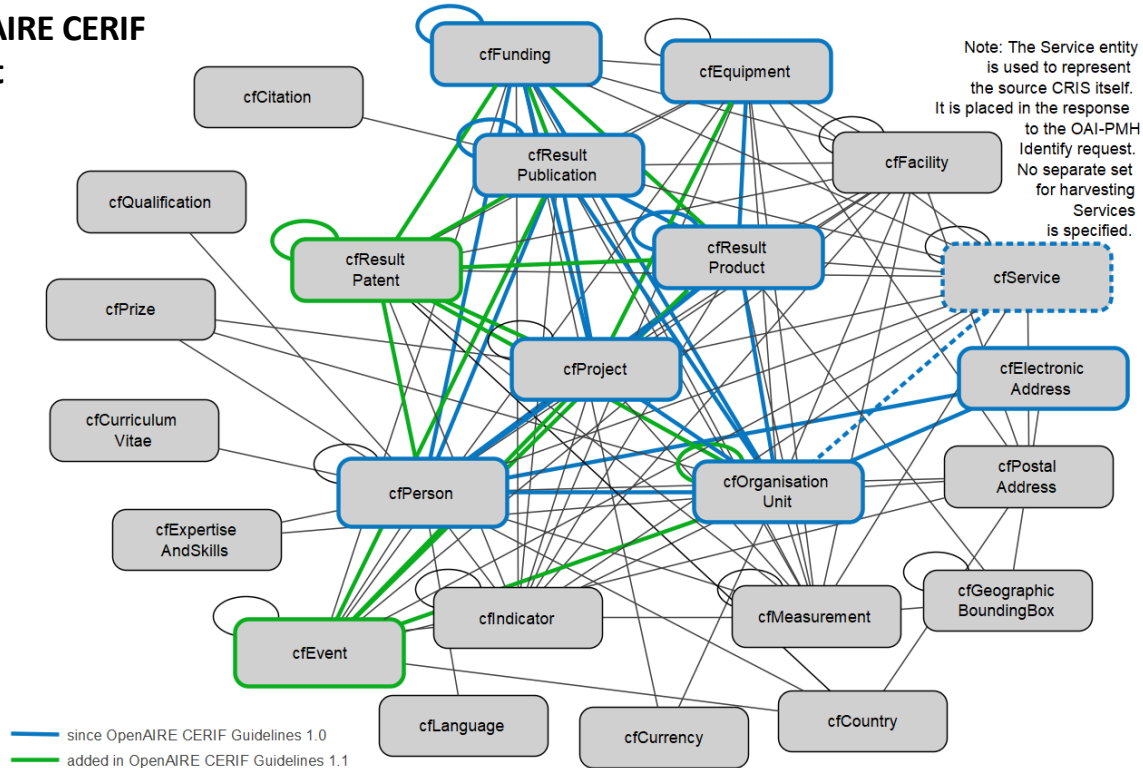
Template XML Schema → adaptation

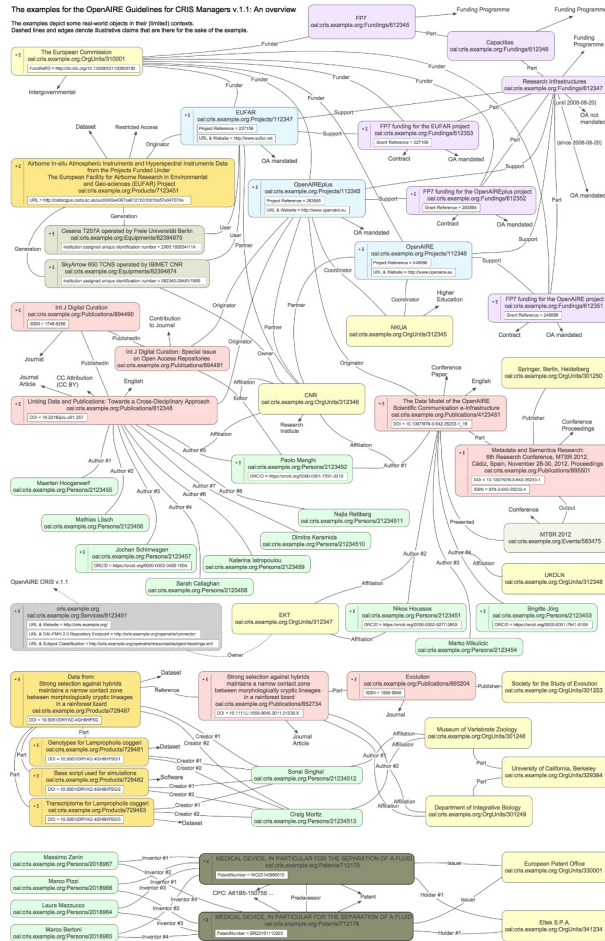
Profiles: Useful subsets of CERIF for specific research information exchange scenarios

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

Ex.: OpenAIRE Guidelines for CRIS Managers 1.1. (2018)  
DOI [10.5281/zenodo.1298649](https://doi.org/10.5281/zenodo.1298649)

## OpenAIRE CERIF Subset





## A Research Graph: The example set from the OpenAIRE Guidelines for CRIS Managers 1.1

OpenAIRE Technical Meeting @ CERN

# 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 --> <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