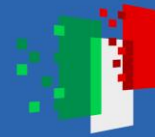




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RISIS

INFRASTRUCTURE

An example of dataset
creation and exploitation

Online course, 5 October 2023

Emanuela Varinetti - Researcher at IRCrES



FOSSR

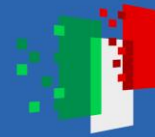
Fostering Open Science in Social Science Research
Innovative tools and services to investigate economic and societal change



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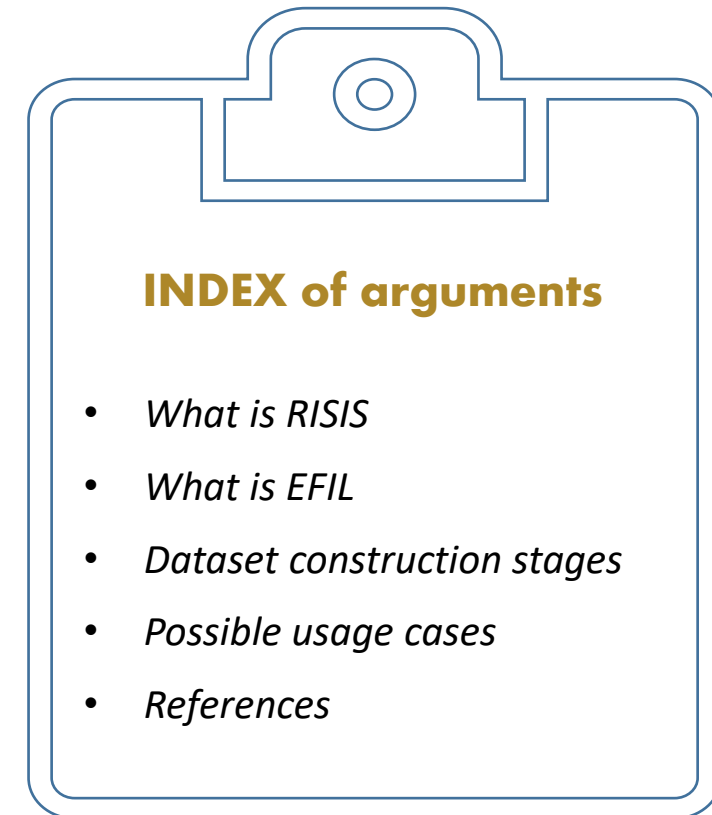
Consiglio Nazionale
delle Ricerche



IRCrES is reference institute of the CNR for the **RISIS research infrastructure** and referent for the Italian node, in which the Politecnico di Milano also participates.

IRCrES participated in the development of the initial and advanced design of **RISIS** in the context of two contracts **financed by** the European Union with the 7th Framework Program of **Horizon 2020**.

Scientific coordinator of two European Tenders which led to the creation of two Datasets (**JOREP** and **PREF**). The first is now integrated into the RISIS infrastructure. The second represented the starting point for the construction of a new dataset on tools and organizations for public funding for research and development in Europe (**EFIL**).





What is RISIS - *Research infrastructure for Science and Innovation Policy Studies*

- European research infrastructure focusing on services and data for science and innovation studies
- 18 partner - including universities and the most innovative research centres in Europe <https://www.risis2.eu/partners/>
- Initiated in 2014 and renewed in 2018 until 2023
- Transformation in AISBL (*Association internationale sans but lucratif*)

It provides European researchers:



Freely **online**
accessible **services**



Project-based
access to curated &
enriched **datasets**



Tools for
methodological
advances



Registers on
research
organizations and
firms



Ontologies,
visualization maps



Training, research
and awareness
raising **events**



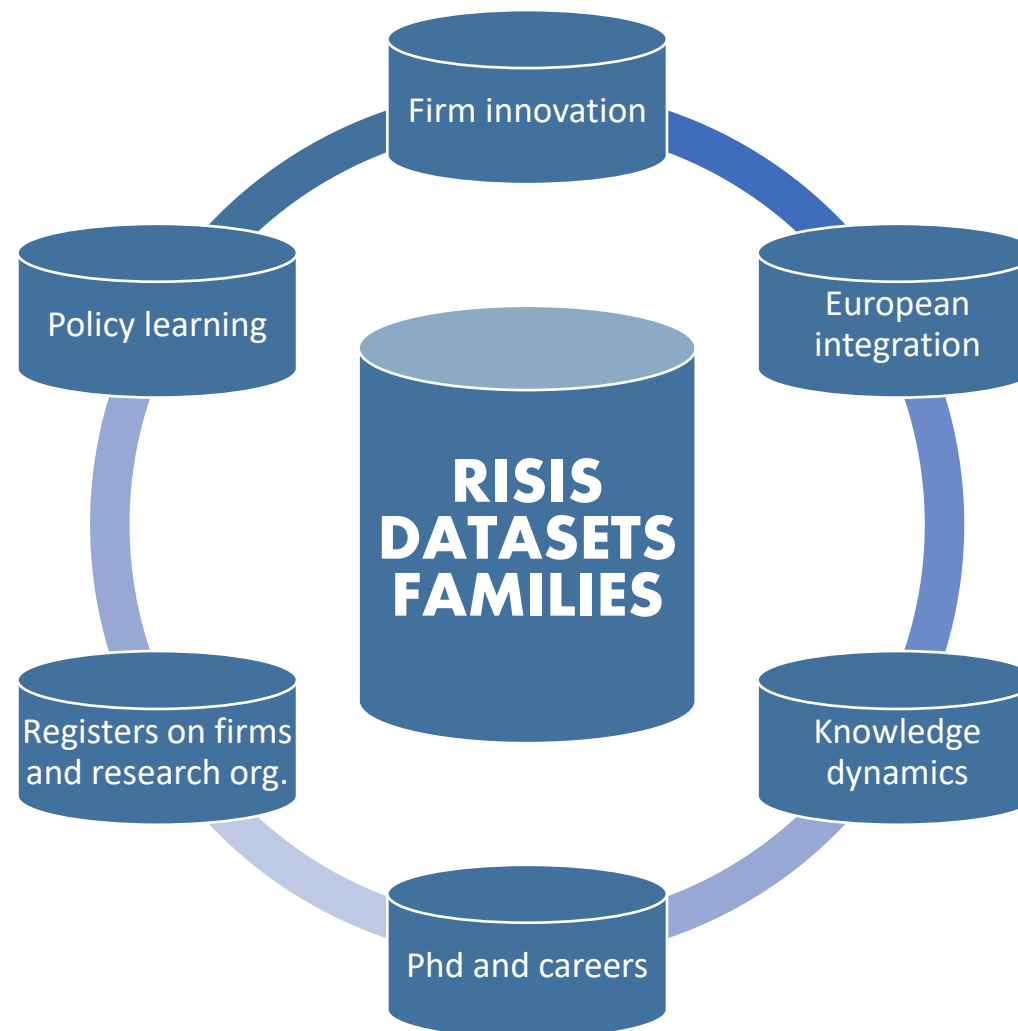
RISIS structure

Access to **15 RISIS datasets** for studying science and innovation

A unique data and services infrastructure

Supporting the development of a new generation of analyses and indicators

<https://www.risis2.eu/risis-datasets/>

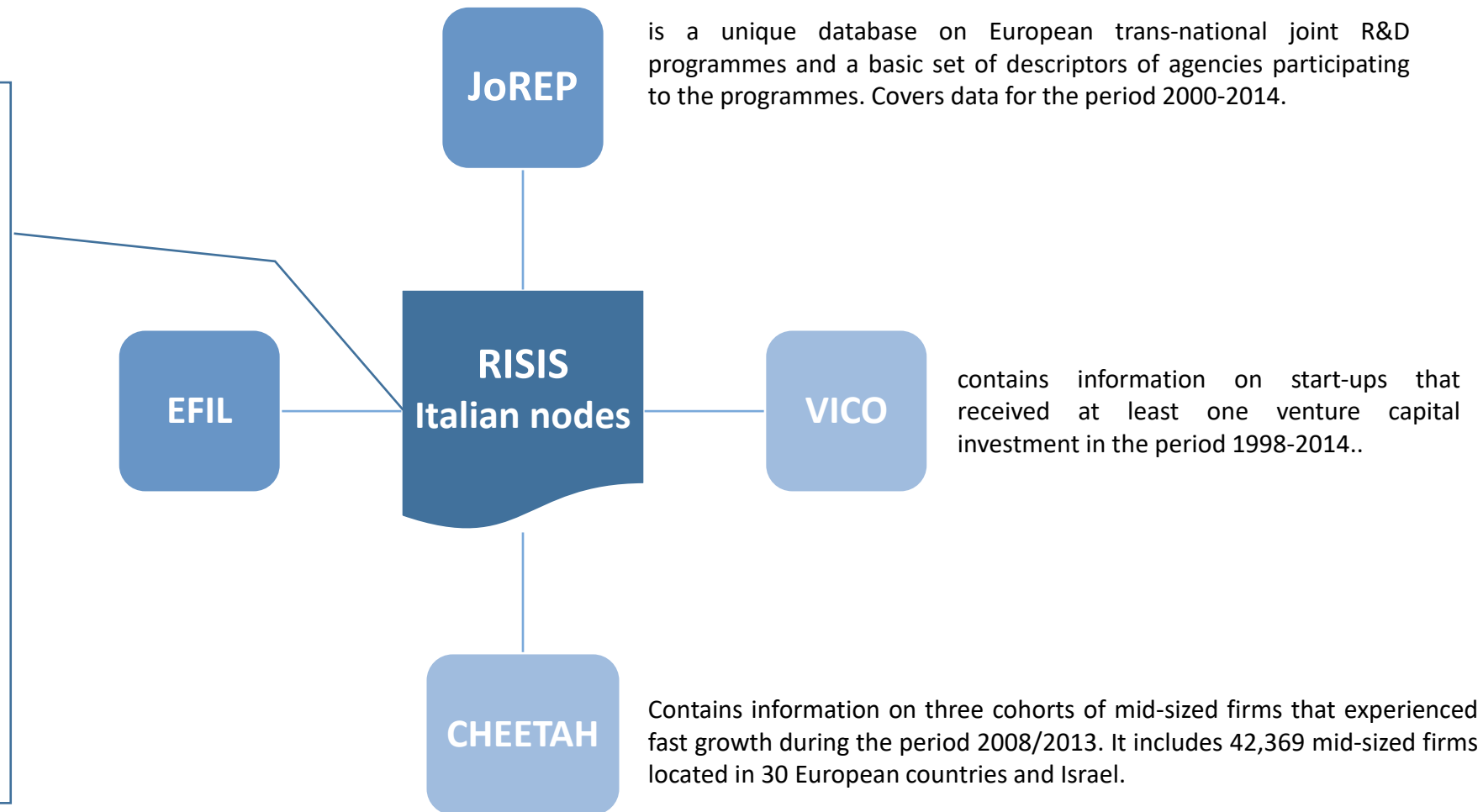




RISIS is identified among the high and medium priority infrastructures, within the **PNIR 2021 2027**

RISIS with **CESSDA**, **SHARE** are RIs in social sciences coordinated by CNR.

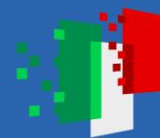
The integration of this pool of resources **will contribute to the realization of Open Science Cloud for scholars in social sciences** proposed by **FOSSR**





What is EFIL?

- EFIL – **European dataset of public R&D funding instruments** aims at enabling users to investigate public R&D funding in Europe at the level of project funding instruments and Research Funding Organizations (RFO), addressing questions related to policy design and policy implementation.
- **Main objectives** of EFIL are: – re-composing and characterizing the portfolios of funding instruments of relevant RFOs from selected European countries (**Austria, Switzerland, Czech Republic, Denmark, Estonia, Germany, Italy, Norway, United Kingdom, France**); – producing evidence of the structural, procedural, and allocational aspects of funding instruments, as well as organizational profiles.
- The **temporal coverage** assumes 2017 and 2018 as reference years for the re-composition of portfolios, but funding data are covered for the period **2021 backwards to 2010**.
- EFIL is complemented by a **repository of official documents** hosted on a cloud – composed of instrument calls, guidelines for participants, descriptions on official webpages, etc. – that is accessible to the database user (useful to characterize the instruments through text analysis, key words, and vocabularies).



PORTFOLIO RECOMPOSITION PROCESS

RFO Portfolio

RFO portfolio from RFO official sources

Funding Route

Meso level of representation

UNITS

Large funding instruments;
Aggregations of scheme

Funding Instrument

Micro-level of representation

UNITS

Funding instruments;
Aggregations disentangled

RFOs are entities that distribute – through funding instruments – public project funds for research and development

“R&D funding instruments” are funding schemes for R&D, within the total public R&D allocations, having proper characteristics in terms how they are managed, the beneficiaries, and how they are allocated

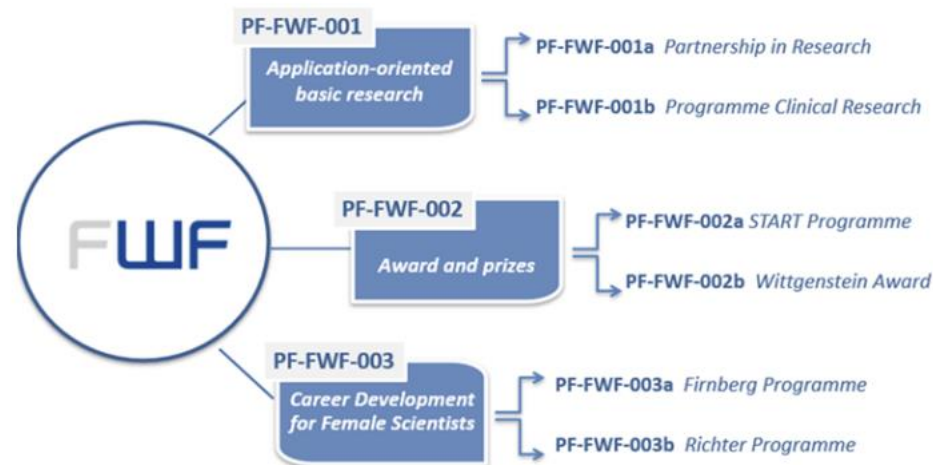
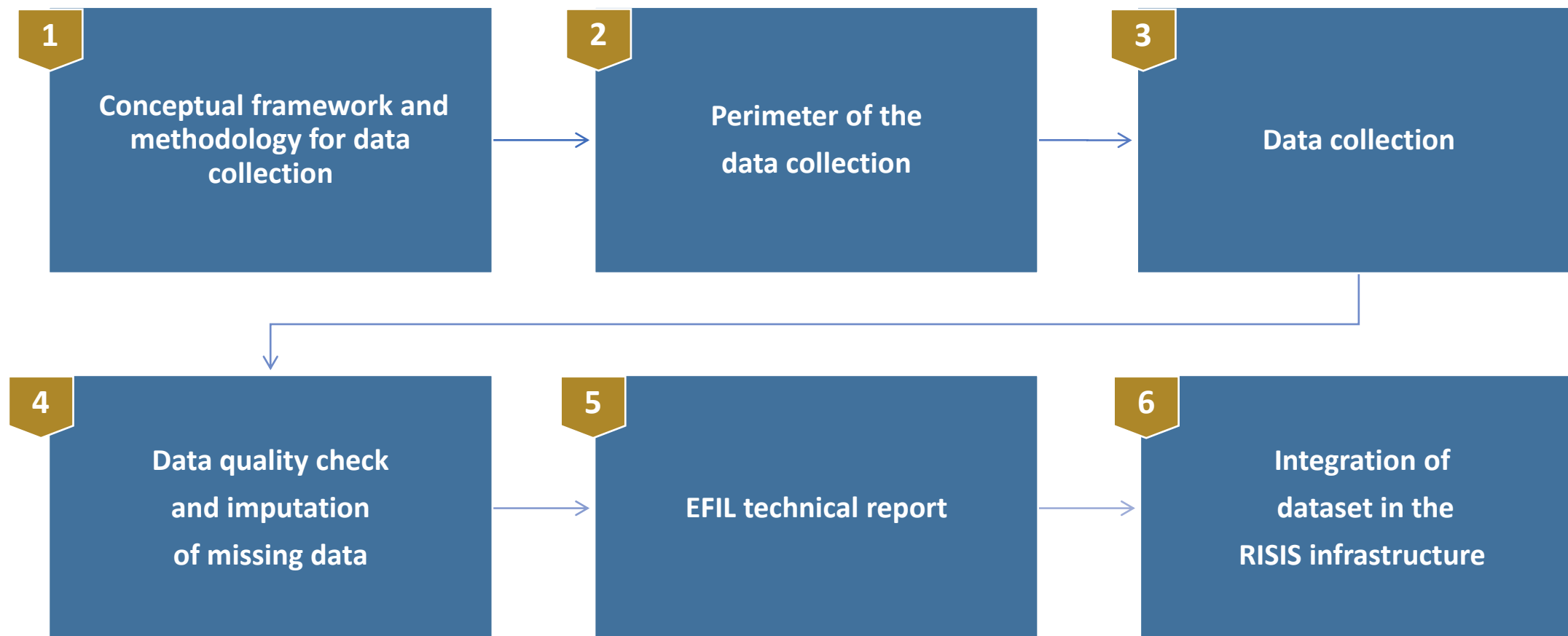
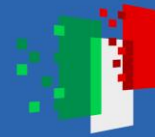


Figure 5. Example of treatment of IDs of route/instruments in EFIL.



Dataset construction stages





1

CONCEPTUAL FRAMEWORK

Based on the experience gained in the EC PREF experimental project and covering both national and regional levels the framework for a dataset on R&D funding instruments was designed, including decisions on:

- Definitions
- Time span
- Indicators and descriptors
- Classifications
- Technical support of the dataset
- Countries to be addressed
- Methodology for the data collection
- Harmonization of EFIL with NATPRO and with ORGREG



2

PERIMETER

The **EFIL perimeter** is based on the RFOs operating in European countries including Central and Eastern countries.

The **first phase focused** on RFOs with 'important' funding capabilities, already integrated in ORGREG.

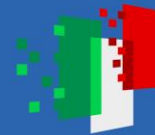
The perimeter was enlarged in a second phase when the whole structure has been defined and tested.

As already mentioned, EFIL stores data on **55 relevant RFOs** from ten countries. EFIL provides information on **386 funding routes** and **700 funding instruments** for these RFOs.

Table 1 details the "EFIL perimeter" by country: number of RFOs selected as relevant, as well as the number of funding routes and single funding instruments for each of the countries.

Country	Number of RFOs	Funding routes	Funding instrument
Austria	4	44	100
Czech Republic	9	37	45
France	3	11	57
Denmark	6	87	88
Estonia	4	10	20
Germany	6	35	78
Italy	3	26	29
Norway	2	16	99
Switzerland	4	20	57
United Kingdom	14	100	127
TOTAL	55	386	700

Table 1. Number of observation for the composition of the EFIL perimeter.



3

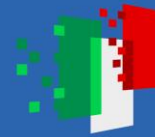
DATA COLLECTION

Pilot data collection. The **feasibility** of the conceptual framework was explored, and the most problematic items were figured out. **Feasibility** study to implement **text analysis** (through RISIS services) to extract from the calls policy implementation and mission orientation of R&D funding.

EFIL data collection is based on a **non-automated procedure developed through a web-exploration** of publicly available information dispersed into multiple resources.

Two waves of collection have been performed:

- the first data collection (completed for the release 1.0 on March 2022) regarded data on instruments active in 2017-2018 and was developed to acquire budgetary data backwards to 2010;
- the second data collection (completed for the release 2.0 on May 2023) regarded data on new instruments active in 2019-2020-2021 and the update of data of the instruments collected during the first wave. In this collection are also included 15 instruments announced in 2021 but that will become active from 2022



4

Data availability and collection of textual materials

- EFIL data collection is **RFO-based** and focuses on **publicly available official documentation** accessible through web-exploration. This collides with the **dispersion of the contents into multiple locations and sources** or, in the worst cases, with the **elimination of the contents** from the websites
- When also **Internet Archive** fails to make up for the unavailability of data and documents, we however collect **general information** on the instruments available in text version on the web pages, converting it into pdf files
- The more you go down to the micro level of the instrument, the more complicated the collection of data and textual documents becomes



5

EFIL technical report

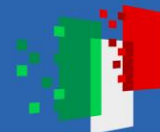
Documentation of RISIS datasets: EFIL

Reale, Emanuela; Spinello, Andrea Orazio; Varinetti, Emanuela; Zinilli, Antonio

This report provides a comprehensive documentation and detailed description of the RISIS EFIL dataset. The dataset deals with public R&D funding in Europe at the level of project funding instruments and Research Funding Organizations (RFO), addressing questions related to policy design and policy implementation. This publication describes the contents of EFIL and provides technical specifications.

<https://zenodo.org/record/6367802>

The screenshot shows the Zenodo record page for the document 'Documentation of RISIS datasets: EFIL'. The page includes the Zenodo logo, a search bar, and navigation links for 'Upload' and 'Communities'. A yellow banner indicates that there is a newer version of the record available. The record is dated March 18, 2022, and has 301 views and 231 downloads. It is indexed in OpenAIRE. The publication date is March 18, 2022, and the DOI is 10.5281/zenodo.6367802. The keywords are 'R&D policy instruments', 'project funding', and 'research funding organizations'. The grants listed are 'European Commission' and 'RISIS 2 - European Research Infrastructure for Science, technology and Innovation policy Studies 2 (824091)'. The communities are 'RISIS - Research infrastructure for research and innovation policy studies'. The license is 'Creative Commons Attribution 4.0 International'. The file 'EFIL dataset_documentation_v1.0.pdf' is 1.4 MB in size and is available for preview and download. The MD5 hash is md5:763956c63b016a6ca3361ba0e0fe5369.



6

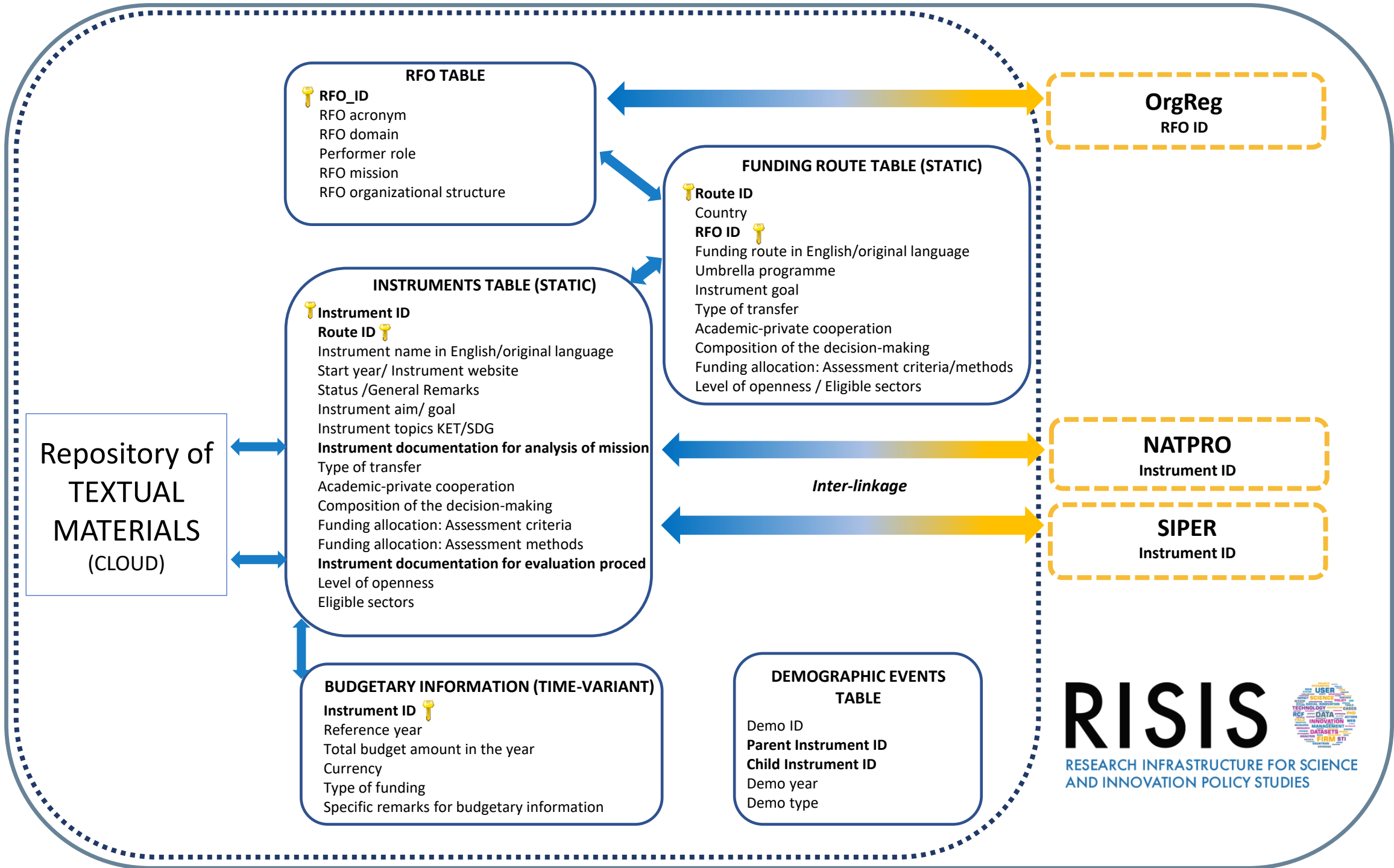
Integration of dataset in/with RISIS infrastructure

Integration

- ORGREG through the RFOs managing the funding schemes (standardization of RFOs and classification)
- NATPRO because of the complementarities between the two facilities (linking projects and funding instruments)
- Other integrations SIPER repository –reference to funding scheme in the evaluation

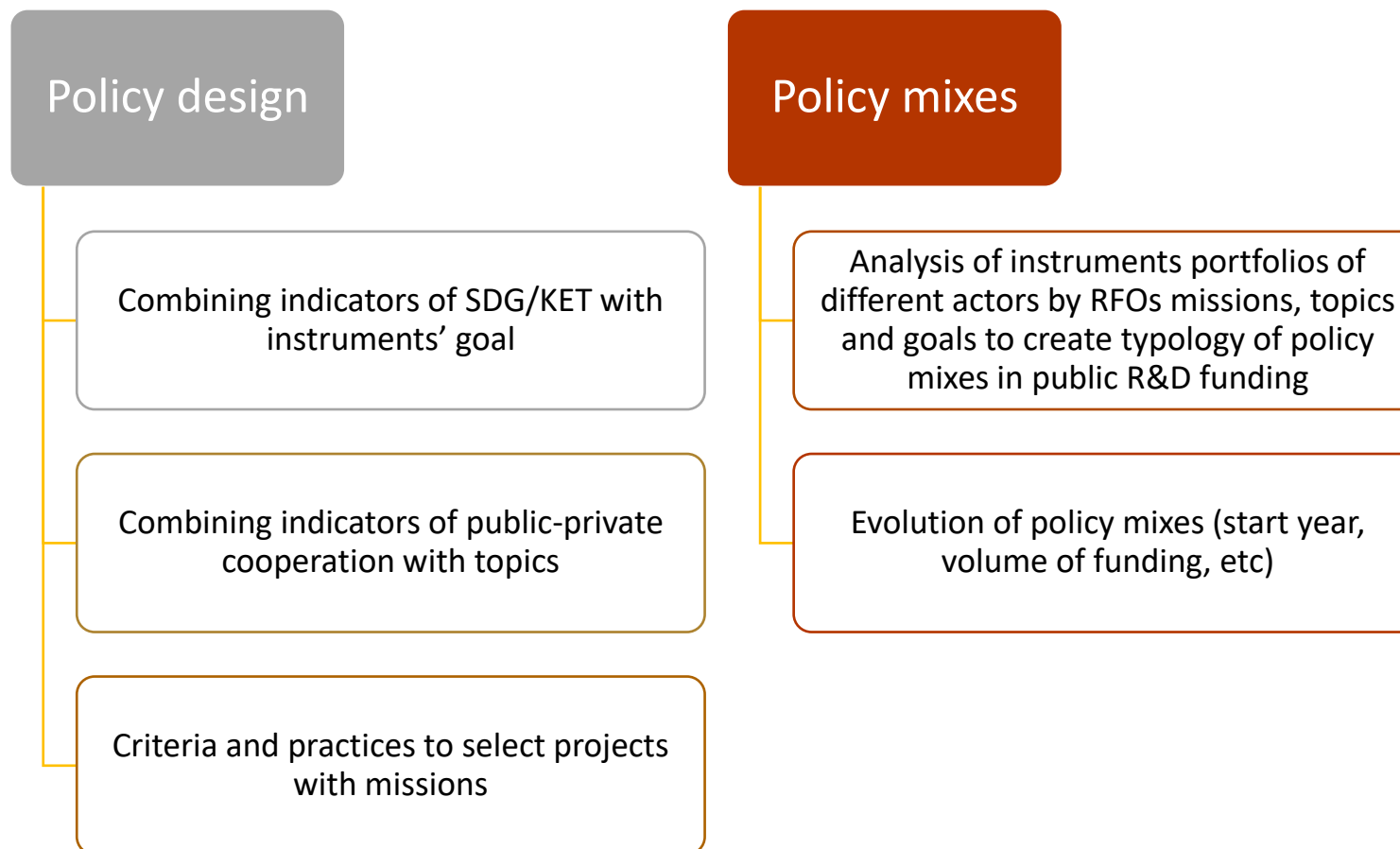
A	B	C	D	E	F	G	H	I	J	K	L	
rfo code	instrument	route ID	coun	NATPRO code	SIPER code	instrument name in english	instrument name original language	start year	instrument website	instrument status	instrument description	
24	AT5001	PF-FFG-006a	PF-FFG-006	AT	ATFFG001	2014-222	AT:net - austrian electronic network	AT:net - austrian electronic network	2010	https://www.ffg.at/atnet_2017_04	Active	AT: net programme promotes the market launch and
19	AT5001	PF-FFG-005a	PF-FFG-005	AT	ATFFG006	2018-706	Bridge - Bottom up Kooperation Wissens Bridge (until 2014)	Bridge - Bottom up Kooperation Wissens Bridge (until 2014)	2010	https://www.ffg.at/programm/bridge	Inactive	Research collaboration between science and industry
19	AT5001	PF-FFG-004	PF-FFG-004	AT	ATFFG009	2015-717	COMET Competence Centers for Excellence COMET	COMET Competence Centers for Excellence COMET	2010	https://www.ffg.at/content/comet-com	Active	The aim of the COMET projects (formerly K-projects)
28	AT5001	PF-FFG-006e	PF-FFG-006	AT	ATFFG011	2015-289	TAKE OFF implementation of the RTI stra TAKE OFF österreichische Luftfahrt	TAKE OFF implementation of the RTI stra TAKE OFF österreichische Luftfahrt	2010	https://www.ffg.at/takeoff	Active	In order to be able to implement the strategic objective
15	AT5001	PF-FFG-003a	PF-FFG-003	AT	ATFFG017	2015-224	R&D Competences for Industry 2012-2014 Forschungskompetenzen f. die Wirts	R&D Competences for Industry 2012-2014 Forschungskompetenzen f. die Wirts	2012	https://www.ffg.at/forschungskompeten	Inactive	This initiative of the Federal Ministry for Digital and
31	AT5001	PF-FFG-006i	PF-FFG-006	AT	ATFFG021	2012-208	International Energy Agency Research Co IEA (KLIEN)	International Energy Agency Research Co IEA (KLIEN)	2010	https://www.ffg.at/internationale-ener	Active	The aim of the R&D services to be provided is the ge
32	AT5001	PF-FFG-006l	PF-FFG-006	AT	ATFFG022	2018-718	ICT of future	IKT der Zukunft	2012	https://www.ffg.at/iktderzukunft	Active	In the thematic initiative "ICT of the Future", the BM
59	AT5001	PF-FFG-013	PF-FFG-013	AT	ATFFG025	2014-288; 2012-2	Laura Bassi	Laura Bassi - Frauen gestalten Digital	2018	https://www.ffg.at/laura-bassi-4.0	Active	The Laura Bassi 4.0 programme is aimed at women v
34	AT5001	PF-FFG-006n	PF-FFG-006	AT	ATFFG027	2018-704	Mobility of the future	Mobilität der Zukunft	2012	https://www.ffg.at/mobilitaetderzukunft	Active	The "Mobility of the Future" programme continues f
35	AT5001	PF-FFG-006o	PF-FFG-006	AT	ATFFG028	2016-716	NANO Environment Health and Safety	Nano- EHS	2015	https://www.ffg.at/programm/nano-e	Active	The research focus is aimed at all actors from univer
58	AT5001	PF-FFG-012	PF-FFG-012	AT	ATFFG031	2019-696	Quantum Research and Technology (QRT)	Quantenforschung und -technologie	2018	https://www.ffg.at/quantenforschung-u	Active	The Austrian National Foundation commissions the
33	AT5001	PF-FFG-006m	PF-FFG-006	AT	ATFFG033	2012-207	KIRAS - Security research	KIRAS - Sicherheitsforschung	2010	https://www.ffg.at/content/kiras	Active	The Austrian Funding Programme for Security Resea
55	AT5001	PF-FFG-010g	PF-FFG-010	AT	ATFFG036	2014-221	Talents (and forerunners) from 2015	Talente (und Vorläufer) from 2015	2011	https://www.ffg.at/programm/talente	Active	The Federal Ministry for Climate Protection, Environ
70	AT5002	PF-FWF-004a	PF-FWF-004	AT	ATFWF004	2014-149	Doctoral Programmes	Doktoratskollegs (DKs)	2010	https://www.fwf.ac.at/en/research-fun	Inactive	The target groups are research groups from all disci
75	AT5002	PF-FWF-007b	PF-FWF-007	AT	ATFWF006	2014-197	Schrödinger Fellowships	Schrödinger-Stipendium	2010	https://www.fwf.ac.at/en/research-fun	Active	Aims: Promotion of scientific work at leading foreig
78	AT5002	PF-FWF-010a	PF-FWF-010	AT	ATFWF024	2020-995	Special Research Programmes (SFB)	Spezialforschungsbereiche (SFBs)	2010	https://www.fwf.ac.at/en/research-fun	Active	Special Research Programmes (SFBs) serve the creat
131	CH5001	PF-SNSF-004	PF-SNSF-004	CH	CHSNSF046	2016-427	National Centres of Competence in Rese	Nationale Forschungsschwerpunkte	2001	http://www.snf.ch/en/funding/program	Active	NCCRs are aimed at established researchers in Switz
130	CH5001	PF-SNSF-003	PF-SNSF-003	CH	CHSNSF078	2018-786	National Research Programmes (NRPs)	Nationale Forschungsprogramme (N	fore 2010	https://www.snf.ch/en/funding/program	Active	NRPs embrace research projects that contribute to s
577	UK5009	PF-AHRC-002b	PF-AHRC-002	UK	UKAHRC001	2012-66	Fellowships - Early Career	Fellowships - Early Career	m	https://www.ukri.org/opportunity/ahrc	Active	This fellowship scheme allows researchers to carry c
616	UK5010	PF-EPSRC-006b	PF-EPSRC-006	UK	UKEPSRC001	2004-81	Postdoctoral Fellowships	Postdoctoral Fellowships	m	https://www.ukri.org/opportunity/epsr	Active	Apply for a fellowship focusing on either: energy, m
608	UK5010	PF-EPSRC-001	PF-EPSRC-001	UK	UKEPSRC003	2005-91	EPSRC standard research grant	EPSRC standard research grant	fore 2010	https://www.ukri.org/opportunity/epsr	Active	Standard Grants are very flexible, with the scale of f
618	UK5011	PF-ESRC-001	PF-ESRC-001	UK	UKESRC001	2009-385	Postdoctoral fellowship	Postdoctoral fellowship	fore 2010	https://www.ukri.org/opportunity/esrc	Active	The call is open to applicants who have completed t
631	UK5008	PF-InnovateUK-0	PF-InnovateUK	UK	UKInnov014	2015-295; 2015-2	Knowledge Transfer Partnerships	Knowledge Transfer Partnerships	fore 2010	https://www.ukri.org/councils/innovate	Active	Since 1975, Knowledge Transfer Partnerships (KTPs)

EFIL DATASET





Example of possible usage cases





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6. Zinilli, A. (2021). Imputation methods for estimating public R&D funding: evidence from longitudinal data. *Qual Quant* 55, 707–729.

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