



# FDO-SEM: MOTIVATION, OBJECTIVES, USE CASE

Peter Mutschke (GESIS)

FAIR Festival, June 21, 2021

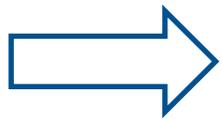


#FAIRconvergence



## Challenges / Gaps:

- still not clear what the minimum set of attributes making a FDO is
- lack of models for representing attributes and relationships in a semantically unambiguous and machine-actionable way
- lack of models on how mappings between FDOs from different domains can be operationalized
- lack of show cases and reference implementations
- lack of models that properly combine insights of the two strands of DO and LD



a **LD-compliant approach to FDOs** is needed:  
unique opportunity that FDOs are not restricted to just PIDs  
but also include SW approaches

**Semantic model of FDOs** to make FDOs semantically more interoperable (needed when it comes to link heterogenous data from different communities)

- specifying the **minimum set of metadata** making a FDO, incl. type model and metadata on how the 15 FAIR principles are addressed (typically references to FAIR-enabling resources)
- specifying a unique and clear semantic model for FDOs, based on a **set of unambiguous semantic predicates** that makes semantic descriptions of FDOs machine-actionable (by bring together insights of the two strands of DO and LD)
- specifying requirements for a generic framework providing **semantic mappings** between FDOs from different communities, respectively mappings between the semantic artefacts contained in FDOs (themselves FDOs)
- reference implementations and **show cases** based on real-world use cases that demonstrate the added-value of FDOs (especially in the context of **cross-domain data linking**)

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More Information +

co-chairs -

## FDO-SEM

### FDO Semantics Group

Group updates -

This group will continue the work started in the realm of GO FAIR and address the semantic model of FDOs as well as the semantic interoperability between data, to help breaking down data silos. Semantic interoperability is especially needed when it comes to linking heterogenous data from different communities in a machine-actionable way, especially in the context of cross-disciplinary research. However, it is still neither clear what the minimum set of attributes making a FDO is nor do we have a model for representing these attributes in a semantically unambiguous and machine-actionable way nor do we have models on how mappings between FDOs from different domains can be operationalized. Furthermore, there is a lack of models that properly combine insights of the two strands of DO and LD, which are driven by quite different epistemic perspectives. An overarching goal of the group therefore is to bring together these two communities to achieve more convergence of solutions as regards FDOs.

The topics to be addressed will include the following key issues:

- specifying the minimum set of metadata making a FDO, incl. defining a type model as well as metadata on how the 15 FAIR principles are addressed (typically references to FAIR-enabling resources)
- specifying a clear semantic model for FDOs, based on a set of unambiguous semantic predicates (using LD technologies) that make the semantic description of FDOs machine-actionable
- specifying requirements for a generic framework providing semantic mappings between FDOs from different communities, respectively mappings between the semantic artefacts contained in FDOs (themselves FDOs), to advance cross-domain data linking
- collecting real-world use cases and developing reference implementations and show cases based on use cases that demonstrate the added-value of FDOs (especially in the context of cross-domain data linking)

To discuss and reach out in the RDA and FAIR community FDO-SEM will closely work together with FDO-TSIG and with RDA DFIG as well as relevant initiatives and projects (e.g. FAIRsFAIR).

The current co-chairs of FDO-SEM are Peter Mutschke and Yann Le Franc. For requests/comments send an email to [peter.mutschke@gesis.org](mailto:peter.mutschke@gesis.org).

**Members**

Oya	Beyan	
Luiz Olavo	Bonino	
Daan	Broeder	
Oscar	Corcho	
Romain	David	
Hans-Günther	Döbereiner	
Yann	Le Franc	
Daniel	Garijo	
Clement	Jonquet	
Hedi	Karray	
Peter	Mutschke	
Giancarlo	Guizzardi	
Robert	Pergl	
María	Poveda	
Zachary	Trautt	
Menzo	Windhouwer	
Peter	Wittenburg	

# SORA USE CASE

## Linking survey data to spatial data (DFG project SoRa)



<http://www.sora-projekt.de/>

gesis

Leibniz Institute for the Social Sciences



Leibniz Institute of Ecological Urban and Regional Development



2018

How satisfied are you with the accessibility of green areas?

ID	SEX	GESAMT	BERUFSTAT	WERTST0	WERTES	RAUCH	GR0	GR1	SCHULABSCH-S	SCHULABSCH-H	SCHULABSCH
1	M	1980	Hauptberuf	40	0	NEIN	170	68	Hochschul	VOLKSH	FACH
2	F	1964	Hauptberuf	43	1	NEIN	163	71	Wettlbre	VOLKSH	VOLK
3	M	1957	Hauptberuf	70	0	JA	174	71	Wettlbre	VOLKSH	VOLK
4	M	1952	NEBENBER	-	2	NEIN	172	111	Wettlbre	VOLKSH	VOLK
5	F	1954	Hauptberuf	20	1	NEIN	168	87	Wettlbre	FACHHOCH	FACH
6	M	1958	Hauptberuf	80	0	NEIN	182	80	Wettlbre	VOLKSH	WETT
7	M	1947	NECHT BER	-	1	NEIN	178	101	VOLKSH	VOLKSH	VOLK
8	F	1986	Hauptberuf	40	6	NEIN	187	86	Hochschul	FACH	FACH
9	M	1951	NECHT BER	-	0	NEIN	180	100	FACHHOCH	VOLKSH	VOLK
10	M	1961	Hauptberuf	35	8	NEIN	190	111	Wettlbre	VOLKSH	VOLK
11	M	1947	NECHT BER	-	1	NEIN	174	82	VOLKSH	VOLKSH	VOLK
12	M	1968	Hauptberuf	70	1	NEIN	168	14	Wettlbre	VOLKSH	VOLK
13	M	1962	Hauptberuf	40	1	NEIN	182	14	Wettlbre	-	-
14	M	1964	Hauptberuf	39	0	NEIN	187	80	Wettlbre	VOLKSH	VOLK
15	M	1964	NEBENBER	-	1	NEIN	182	83	VOLKSH	VOLKSH	VOLK
16	M	1950	Hauptberuf	38	3	NEIN	173	82	Hochschul	VOLKSH	VOLK
17	F	1959	NECHT BER	-	11	NEIN	185	80	VOLKSH	VOLKSH	VOLK
18	M	1953	Hauptberuf	45	8	NEIN	175	105	Wettlbre	VOLKSH	VOLK
19	M	1959	Hauptberuf	42	2	JA	180	18	FACHHOCH	VOLKSH	WETT
20	M	1946	NECHT BER	-	10	NEIN	188	18	Wettlbre	-	-
21	M	1955	Hauptberuf	40	2	JA	179	83	Wettlbre	VOLKSH	VOLK
22	M	1941	NECHT BER	-	1	NEIN	187	17	Wettlbre	VOLKSH	VOLK
23	M	1940	NECHT BER	-	1	JA	170	86	FACHHOCH	FACHHOCH	FACH
24	M	1968	Hauptberuf	40	0	JA	172	82	Wettlbre	VOLKSH	VOLK
25	M	1966	Hauptberuf	50	0	NEIN	175	66	Wettlbre	FACHHOCH	VOLK
26	M	1941	NECHT BER	-	1	NEIN	176	79	FACHHOCH	VOLKSH	VOLK
27	M	1980	Hauptberuf	44	-	JA	171	76	FACHHOCH	-	HOC
28	M	1942	NECHT BER	-	10	NEIN	173	85	Wettlbre	VOLKSH	VOLK
29	M	1970	Hauptberuf	43	1	NEIN	178	80	Hochschul	VOLKSH	FACH
30	M	1960	Hauptberuf	55	1	NEIN	171	100	Hochschul	FACHHOCH	WETT
31	M	1961	Hauptberuf	39	1	JA	190	93	FACHHOCH	WETTLE	WETT
32	M	1966	Hauptberuf	37	0	NEIN	170	87	FACHHOCH	VOLKSH	VOLK
33	M	1971	Hauptberuf	38	0	NEIN	165	85	VOLKSH	OHNE ABS	OHNE
34	M	1940	NECHT BER	-	6	NEIN	183	68	Hochschul	Hochschul	WETT
35	M	1961	Hauptberuf	50	1	NEIN	185	83	Hochschul	Hochschul	WETT

Respondent's Dwelling

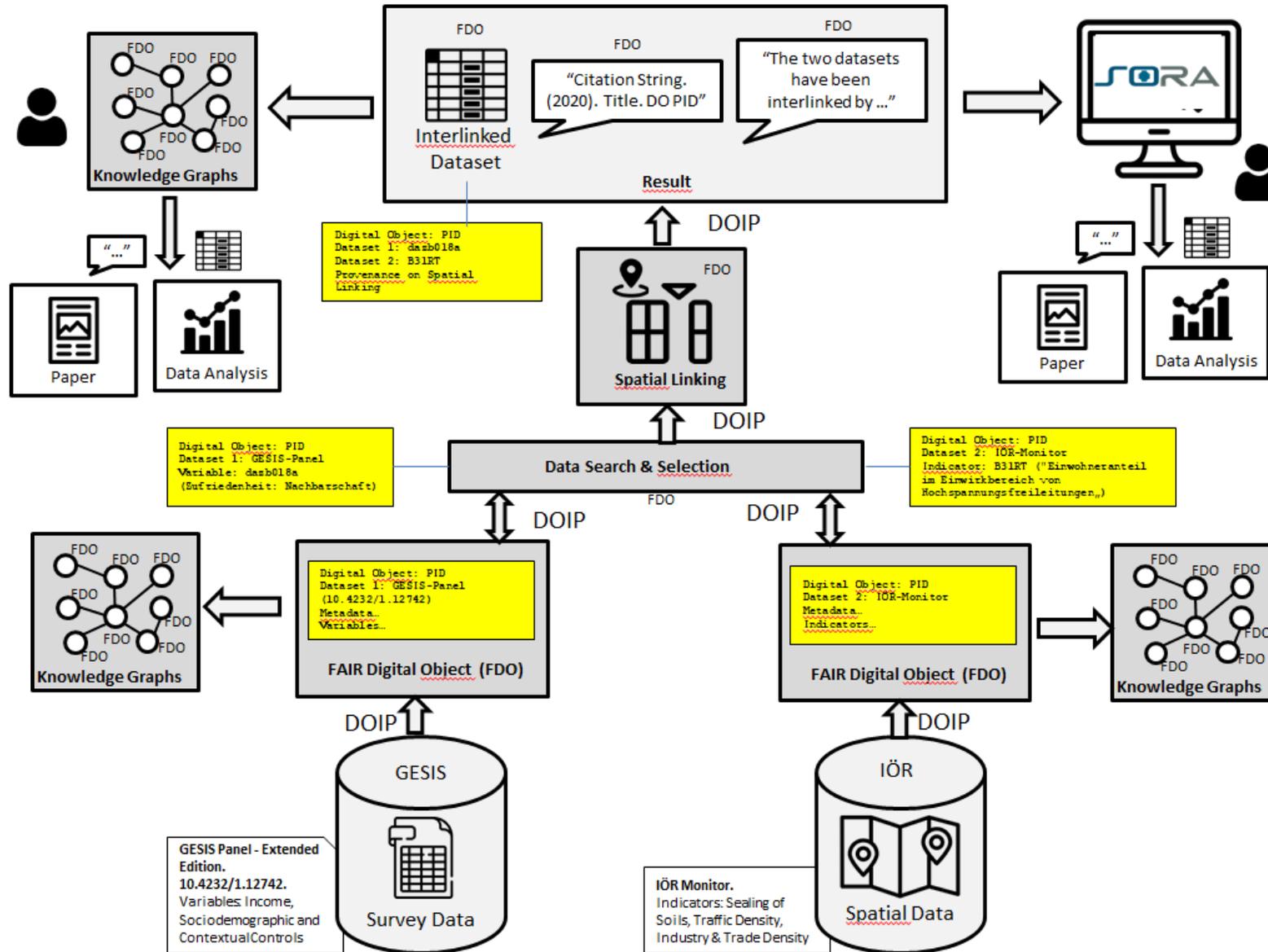
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2018

Respondent's Address

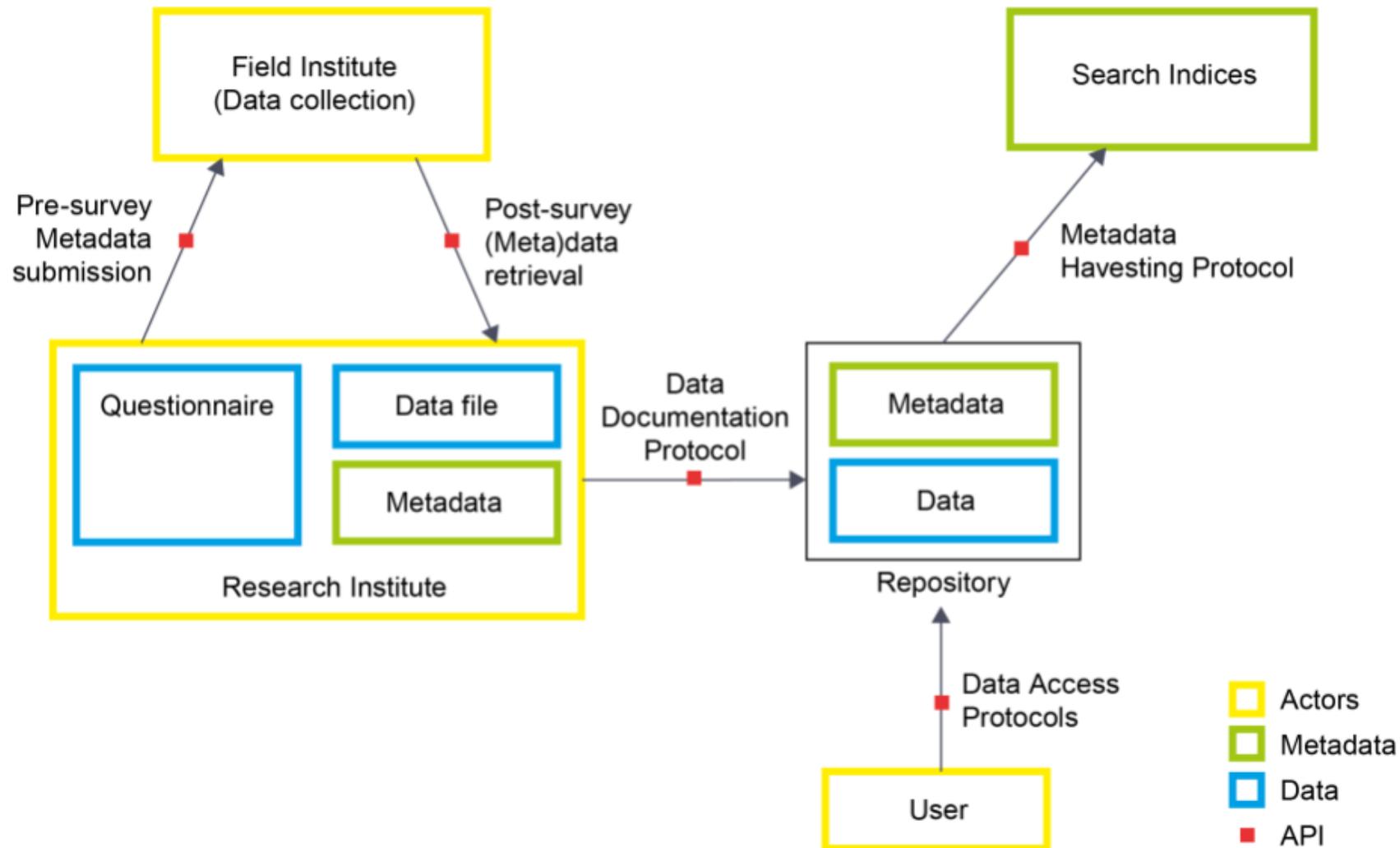


# SORA: MODEL OF END-TO-END WORKFLOW BASED ON FDO



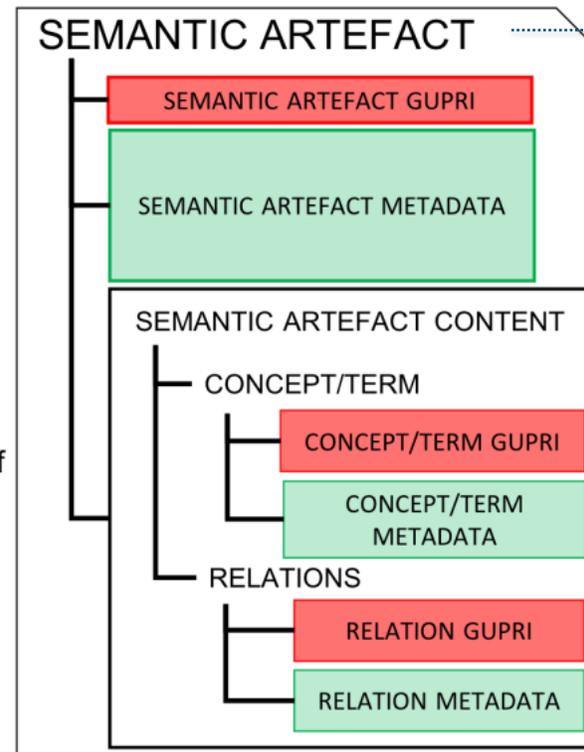
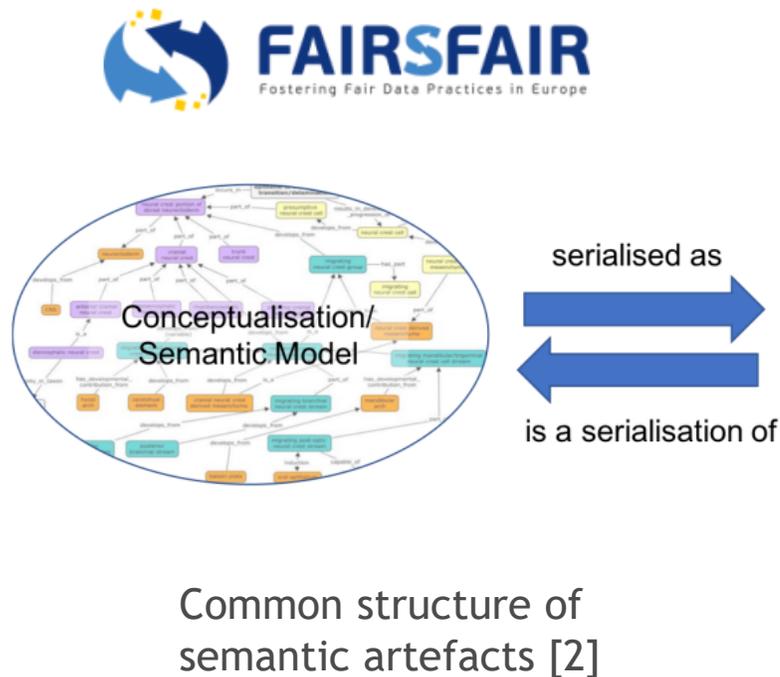
# NFDI USE CASE

Shared access for items, scripts and streaming data in the Educational Sciences and the Social Sciences:  
FDO interfaces between different stakeholder services



# FDO & FAIRSEMANTICS

“The vocabularies used for metadata or data also need to be findable, accessible, interoperable, and reusable in their own right so that users (including machines) can fully understand the meaning of the terms used in the metadata.” [1]



“specific type of data, used to describe or annotate other data” [2]

Specific challenge: interoperability of vocabulary services



FDO model for semantic artifacts strongly required

Thank you!