



# FDO-SEM: MOTIVATION, OBJECTIVES, USE CASE

Peter Mutschke (GESIS)

FAIR Festival, June 21, 2021

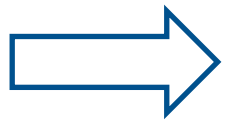


#FAIRconvergence



## 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)



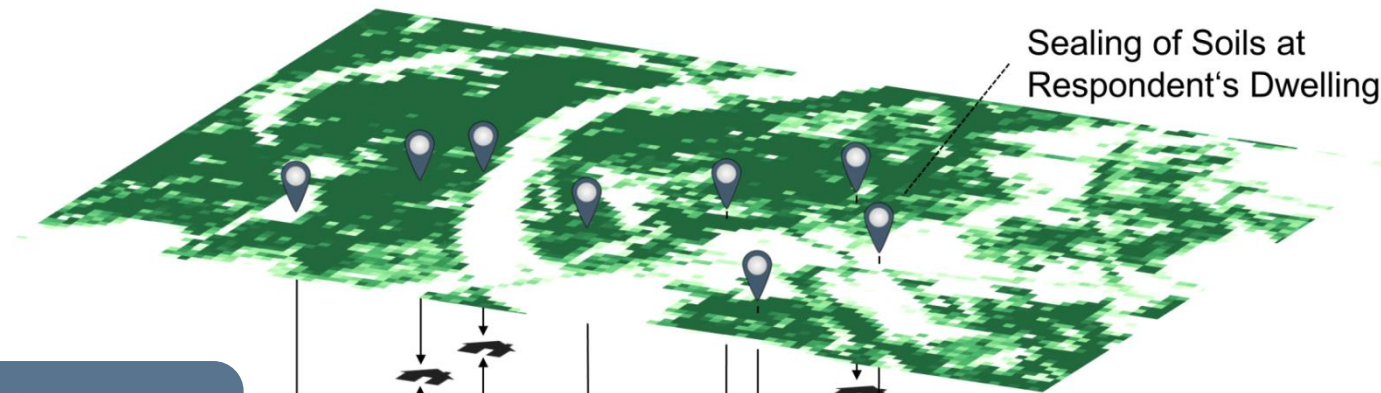
<http://www.sora-projekt.de/>

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?

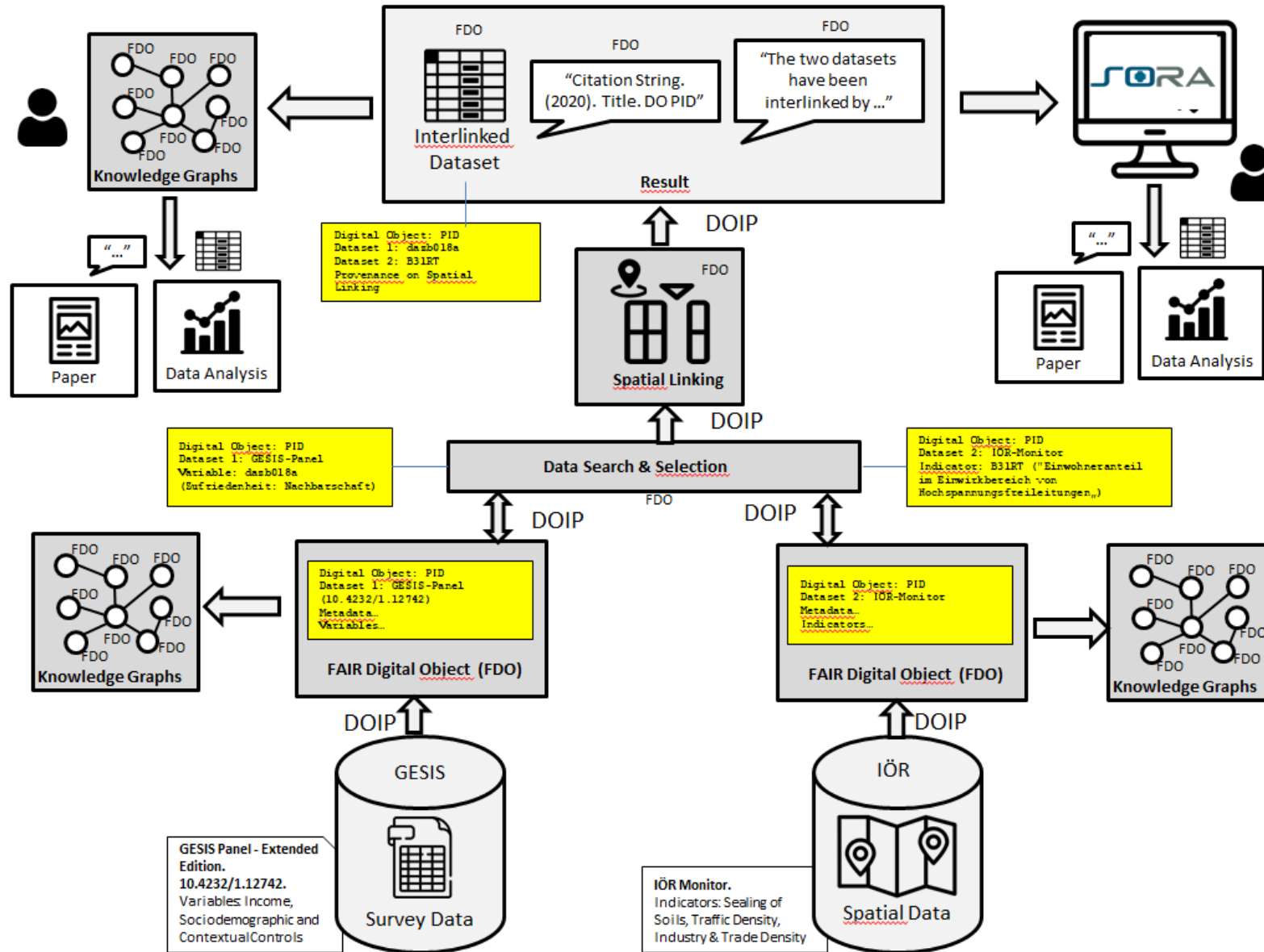


2018

ID	SEX	GESCHL	BERUFSTATTUS	WREISTO	WRETTES	RAUCH	GR	GRV	SCHULABSCH-S	SCHULABSCH-H	SCHULAB	
1	1	WEIBLICH	1980	HAUPTBERU	40	0	NEIN	170	68	HOCHSCHUL	VOLKS-UN	FACH
2	2	WEIBLICH	1964	HAUPTBERU	43	1	NEIN	163	75	WETTLERE	VOLKS-UN	VOLK
3	2	HAENNLICH	1957	HAUPTBERU	70	0	JA	174	75	WETTLERE	VOLKS-UN	VOLK
4	4	HAENNLICH	1952	NEBENBER	-	2	NEIN	172	115	WETTLERE	VOLKS-UN	VOLK
5	5	WEIBLICH	1954	HAUPTBERU	20	1	NEIN	168	87	WETTLERE	FACHHOCH	FACH
6	6	HAENNLICH	1958	HAUPTBERU	60	0	NEIN	182	90	WETTLERE	VOLKS-UN	WETTL
7	7	HAENNLICH	1947	NECHT BER	-	1	NEIN	178	101	VOLKS-UN	VOLKS-UN	VOLK
8	8	WEIBLICH	1986	HAUPTBERU	40	6	NEIN	187	86	HOCHSCHUL	FACH	FACH
9	9	HAENNLICH	1951	NECHT BER	-	0	NEIN	180	100	FACHHOCH	VOLKS-UN	VOLK
10	10	HAENNLICH	1961	HAUPTBERU	35	8	NEIN	190	115	WETTLERE	VOLKS-UN	VOLK
11	11	HAENNLICH	1947	NECHT BER	-	3	NEIN	174	82	VOLKS-UN	VOLKS-UN	VOLK
12	12	WEIBLICH	1968	HAUPTBERU	70	1	NEIN	168	54	WETTLERE	VOLKS-UN	VOLK
13	13	WEIBLICH	1962	HAUPTBERU	40	3	NEIN	182	14	WETTLERE	-	-
14	14	WEIBLICH	1964	HAUPTBERU	39	0	NEIN	187	60	WETTLERE	VOLKS-UN	VOLK
15	15	WEIBLICH	1964	NEBENBER	-	3	NEIN	182	63	VOLKS-UN	VOLKS-UN	VOLK
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17	17	WEIBLICH	1959	NECHT BER	-	11	NEIN	165	60	VOLKS-UN	VOLKS-UN	VOLK
18	18	HAENNLICH	1953	HAUPTBERU	45	8	NEIN	175	105	WETTLERE	VOLKS-UN	VOLK
19	19	WEIBLICH	1959	HAUPTBERU	42	2	JA	180	58	FACHHOCH	VOLKS-UN	WETTL
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23	23	HAENNLICH	1940	NECHT BER	-	1	JA	170	86	FACHHOCH	FACHHOCH	FACH
24	24	WEIBLICH	1968	HAUPTBERU	40	0	JA	172	42	WETTLERE	VOLKS-UN	VOLK
25	25	WEIBLICH	1966	HAUPTBERU	50	0	NEIN	175	66	WETTLERE	FACHHOCH	VOLK
26	26	HAENNLICH	1941	NECHT BER	-	1	NEIN	176	79	FACHHOCH	VOLKS-UN	VOLK
27	27	HAENNLICH	1980	HAUPTBERU	44	-	JA	171	76	FACHHOCH	VOLKS-UN	HOCHE
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30	30	WEIBLICH	1960	HAUPTBERU	55	1	NEIN	171	100	HOCHSCHUL	FACHHOCH	WETTL
31	31	HAENNLICH	1961	HAUPTBERU	39	1	JA	190	93	FACHHOCH	WETTLERE	WETTL
32	32	WEIBLICH	1966	HAUPTBERU	37	0	NEIN	170	67	FACHHOCH	VOLKS-UN	VOLK
33	33	HAENNLICH	1971	HAUPTBERU	38	0	NEIN	165	85	VOLKS-UN	OHNE ABSCH	OHNE
34	34	HAENNLICH	1940	NECHT BER	-	4	NEIN	183	68	HOCHSCHUL	HOCHSCHUL	WETTL
35	35	HAENNLICH	1962	HAUPTBERU	50	1	NEIN	185	63	HOCHSCHUL	HOCHSCHUL	WETTL

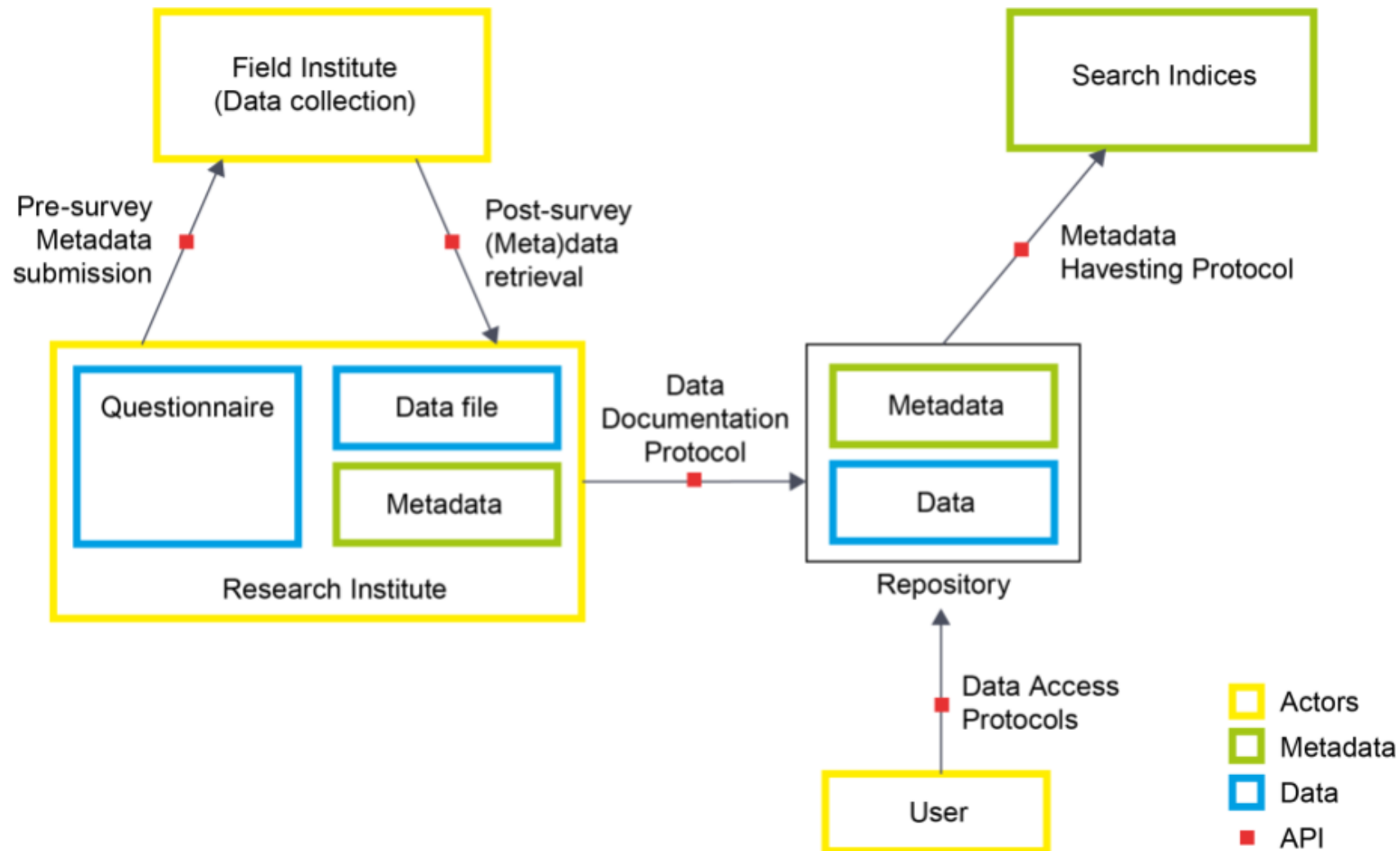


# SORA: MODEL OF END-TO-END WORKFLOW BASED ON FDO



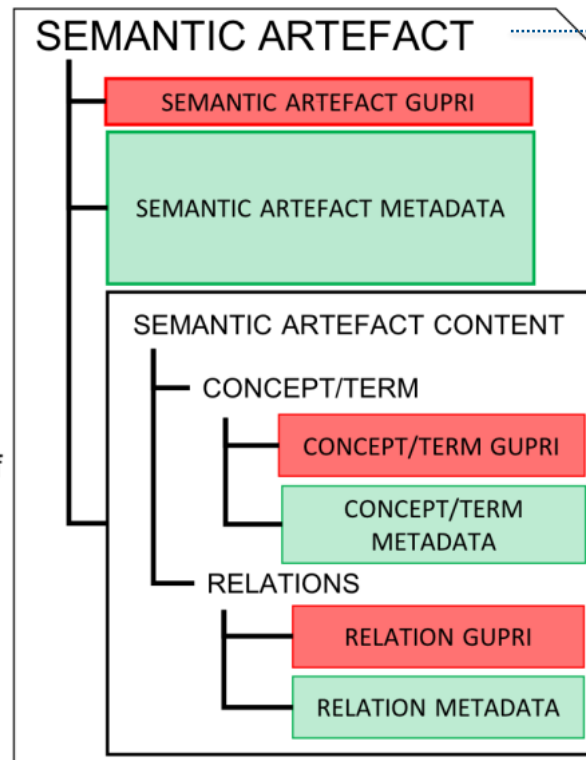
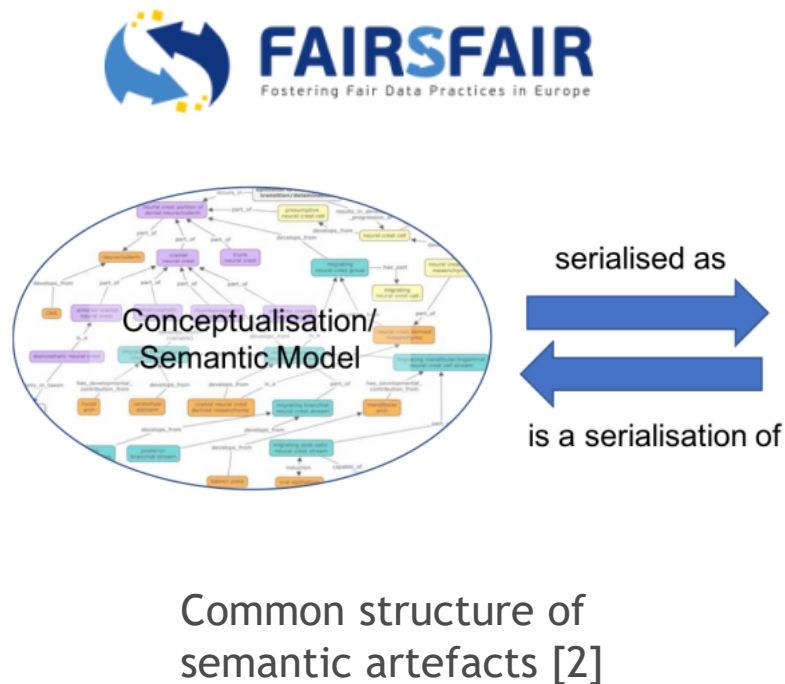
# NFDI USE CASE

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!