



# GO FAIR Implementation Network on Cross-Domain Interoperability of Heterogeneous Research Data (GO Inter)

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#INsGOFAIR19

- Domain-specific, disconnected “**data silos**” most crucial obstacle to Open Science
- Widely accepted standards for data representation and linking (see the W3C/RDA standards)
- But: data in these silos often described using heterogeneous and often unstandardized metadata and vocabularies which cannot be easily linked with each other
- Makes interoperability, discovery and reuse of research data across community borders challenging tasks
- Key challenge: complexities of **interoperability**, whose different layers, ranging from encoding up to structural and semantic specifications of data, are yet to be fully understood
- Reference models that guide data providers in how best to represent their data in ways that capture the meaning of the data across study/community borders without information loss extremely rare
- Lack of understanding about how best to navigate between **different levels of granularity** provided in data documentation schemes and **how to map between different Knowledge Organisation Systems**
- Reference models need to be generic enough to be adaptable to different scientific domains, especially when it comes to linking data from different communities

- To provide a cross-domain interoperability framework consisting of methods, tools and guidelines for implementing and assessing semantic interoperability of research data across discipline borders
- To develop and evaluate reference implementations of interoperability for real-world cross-domain research uses case by broadly applying existing standards, vocabularies and semantics technologies
- To engage with other GO FAIR implementation networks and related initiatives to disseminate and exchange best practice solutions for cross-domain interoperability

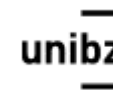
- Complete the execution plan & roadmap as part of the process becoming a GO FAIR Implementation Network (within in 6 months after approval)
- Review of existing technologies and standards as well as past and ongoing initiatives and projects which address the interoperability aspect of the FAIR principles
- Explore cross-domain use cases to better understand differences of interoperability, in particular the different layers of interoperability
- Provide assistance services that guide data providers in bringing (meta)data into common representation formats and schemes (such as schema.org, DCAT), in mapping their data to existing vocabularies and in making data available via standard protocols
- Provide an ontologies lookup service that work as a gatekeeper across different standards and domains and overcomes incongruences between different vocabularies
- Provide models and methods for qualified linking and annotating cross-domain research data by broadly applying existing technologies from the Semantic Web community, such as ontology crosswalks (e.g. LOV), smart ontology mapping, ontology alignment and existing Linked Data compliant semantic annotation services (e.g. B2NOTE)

- Create semantically rich cross-domain research knowledge graphs that may better support cross-community data search and analysis
- Explore the use of foundational ontologies (namely Unified Foundational Ontology) for providing deep semantic meaning of data and thus improved means for interoperability
- Mechanisms to link Digital Objects with operations suitable for their type (RDA data type registry)
- Apply existing or provide novel measures and gradational maturity models for assessing cross-domain interoperability (see [fairmetrics.org](http://fairmetrics.org) and [fairsfair.eu](http://fairsfair.eu))
- Develop and evaluate reference implementations for real-world use cases that link data from different communities, by applying
  - common Web (W3C) standards and technologies
  - solutions proposed by RDA, such as the Digital Object Interface Protocol (DOIP)
- Publish guidelines for implementing and assessing cross-domain interoperability
- Share results with the GO-FAIR community and other related initiatives and networks through common workshops

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- **Current Members:**

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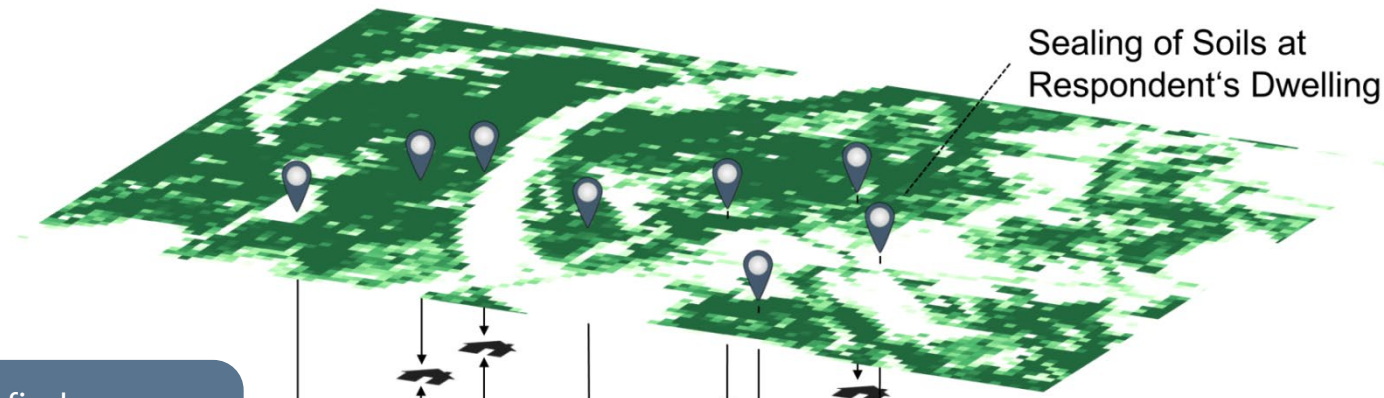
## Linking survey data to spatial data (DFG project SoRa)



Leibniz Institute for the Social Sciences



Leibniz Institute of Ecological Urban and Regional Development



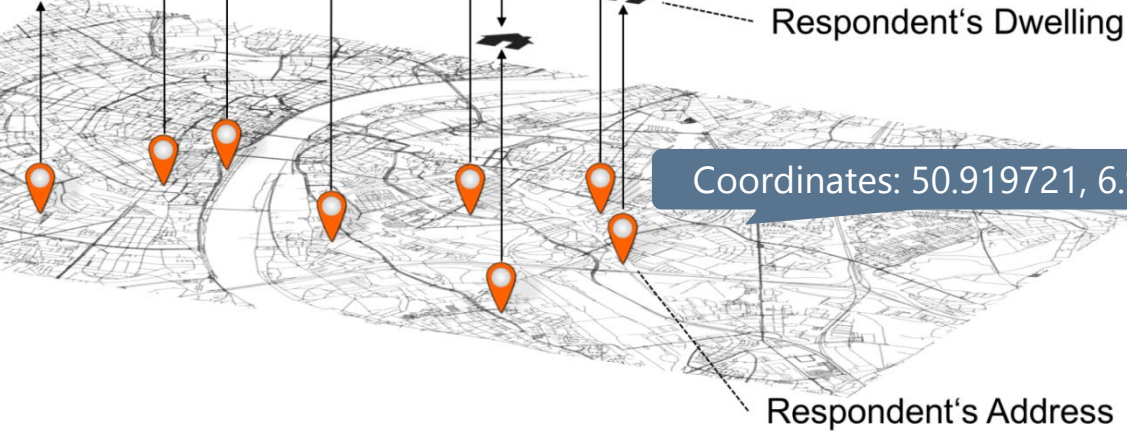
2018

How satisfied are you with the accessibility of green areas?

ID	GEW	GESCHL	GESAMT	SOZIALSTATUS	WIRTSCHAFTS	METRES	RAUCH	WFO	GEN	SCHULABSCH	SCHULABSCH	SCHULAB
1	21	WEIBLICH	1990	HAUPTBERU	40	0	NEIN	170	68	HOCHSCHUL	VOLKS-HA	FACH
2	2	WEIBLICH	1964	HAUPTBERU	40	1	NEIN	183	75	MITTLERE	VOLKS-HA	VOLK
3	2	WAENNLICH	1957	HAUPTBERU	70	0	JA	174	75	MITTLERE	VOLKS-HA	VOLK
4	4	WAENNLICH	1952	NEBENBER	-	2	NEIN	172	115	MITTLERE	VOLKS-HA	VOLK
5	1	WEIBLICH	1954	HAUPTBERU	20	1	NEIN	148	87	MITTLERE	FACHHOCH	FACH
6	6	WAENNLICH	1958	HAUPTBERU	60	0	NEIN	182	90	MITTLERE	VOLKS-HA	MITTE
7	7	WAENNLICH	1947	NICHT ERW	-	1	NEIN	178	101	VOLKS-HA	VOLKS-HA	VOLK
8	8	WEIBLICH	1988	HAUPTBERU	40	6	NEIN	187	88	HOCHSCHUL	HOCHSCHUL	FACH
9	9	WAENNLICH	1951	NICHT ERW	-	0	NEIN	180	100	FACHHOCH	VOLKS-HA	VOLK
10	10	WAENNLICH	1961	HAUPTBERU	35	8	NEIN	190	115	MITTLERE	VOLKS-HA	VOLK
11	11	WAENNLICH	1947	NICHT ERW	-	1	NEIN	174	82	VOLKS-HA	VOLKS-HA	VOLK
12	12	WEIBLICH	1968	HAUPTBERU	70	1	NEIN	168	56	MITTLERE	VOLKS-HA	VOLK
13	13	WEIBLICH	1962	HAUPTBERU	40	1	NEIN	182	14	MITTLERE	-	-
14	14	WEIBLICH	1956	HAUPTBERU	39	0	NEIN	187	60	MITTLERE	VOLKS-HA	VOLK
15	15	WEIBLICH	1964	NEBENBER	-	3	NEIN	182	63	VOLKS-HA	VOLKS-HA	VOLK
16	16	WAENNLICH	1950	HAUPTBERU	38	3	NEIN	173	82	HOCHSCHUL	VOLKS-HA	VOLK
17	17	WEIBLICH	1939	NICHT ERW	-	11	NEIN	155	60	VOLKS-HA	VOLKS-HA	VOLK
18	18	WAENNLICH	1953	HAUPTBERU	41	8	NEIN	175	105	MITTLERE	VOLKS-HA	VOLK
19	19	WEIBLICH	1959	HAUPTBERU	42	2	JA	180	18	FACHHOCH	VOLKS-HA	MITTE
20	20	WEIBLICH	1946	NICHT ERW	-	10	NEIN	158	18	MITTLERE	-	-
21	21	WAENNLICH	1955	HAUPTBERU	40	2	JA	179	85	MITTLERE	VOLKS-HA	VOLK
22	22	WEIBLICH	1941	NICHT ERW	-	1	NEIN	187	17	MITTLERE	VOLKS-HA	VOLK
23	23	WAENNLICH	1940	NICHT ERW	-	1	JA	170	86	FACHHOCH	FACHHOCH	FACH
24	24	WEIBLICH	1968	HAUPTBERU	40	0	JA	172	82	MITTLERE	VOLKS-HA	VOLK
25	25	WEIBLICH	1966	HAUPTBERU	50	0	NEIN	175	66	MITTLERE	FACHHOCH	VOLK
26	26	WAENNLICH	1946	NICHT ERW	-	1	NEIN	176	79	FACHHOCH	VOLKS-HA	VOLK
27	27	WAENNLICH	1930	HAUPTBERU	44	-	JA	171	76	FACHHOCH	-	-
28	28	WAENNLICH	1942	NICHT ERW	-	10	NEIN	173	85	MITTLERE	VOLKS-HA	VOLK
29	29	WAENNLICH	1970	HAUPTBERU	43	1	NEIN	178	89	HOCHSCHUL	VOLKS-HA	FACH
30	30	WEIBLICH	1966	HAUPTBERU	51	1	NEIN	171	100	HOCHSCHUL	FACHHOCH	MITTE
31	31	WAENNLICH	1951	HAUPTBERU	39	1	JA	180	93	FACHHOCH	MITTLERE	MITTE
32	32	WEIBLICH	1966	HAUPTBERU	37	2	NEIN	170	87	FACHHOCH	VOLKS-HA	VOLK
33	33	WAENNLICH	1975	HAUPTBERU	38	0	NEIN	165	85	VOLKS-HA	OHNE ABS	OHNE
34	34	WAENNLICH	1940	NICHT ERW	-	6	NEIN	183	68	HOCHSCHUL	HOCHSCHUL	MITTE
35	35	WAENNLICH	1960	HAUPTBERU	50	1	NEIN	185	83	HOCHSCHUL	HOCHSCHUL	MITTE

Coordinates: 50.919721, 6.967379

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Thank you!