

Water Health Open KnowlEdge Co-creation program meeting

Technical and semantic challenges

EU GREEN WEEK 2021 PARTNER EVENT

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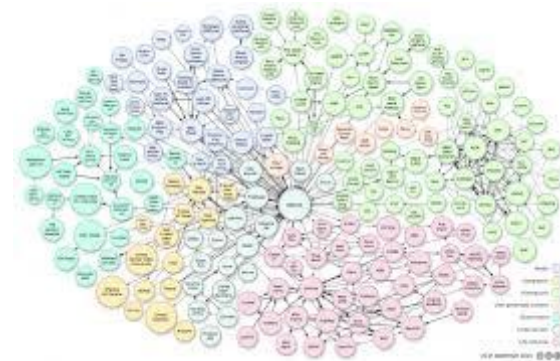
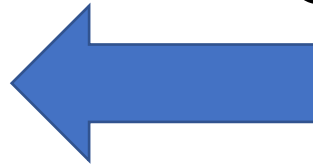
ZERO #EUGreenWeek
POLLUTION
for healthier people and planet



Main Objective



Contributing to



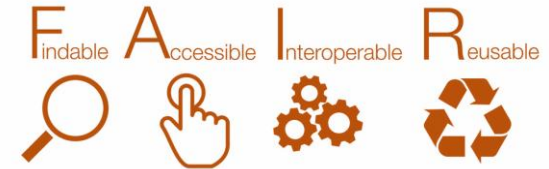
DSI - Digital
Service
Infrastructure

First European KG(s) on
water consumption,
pollution and health data
(e.g., diseases
dissemination)

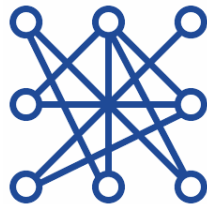
Main requirements



Modular framework for sustainability of KGs creation management and access



Use of FAIR principles for knowledge discovery, data integration, sharing and reuse



Decentralized paradigm adoption for sustainability and rightholdership maintenance

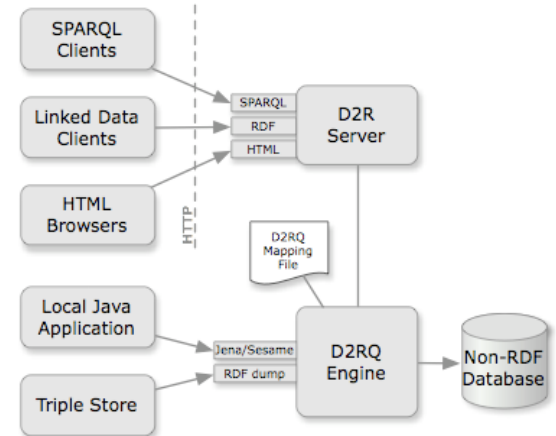
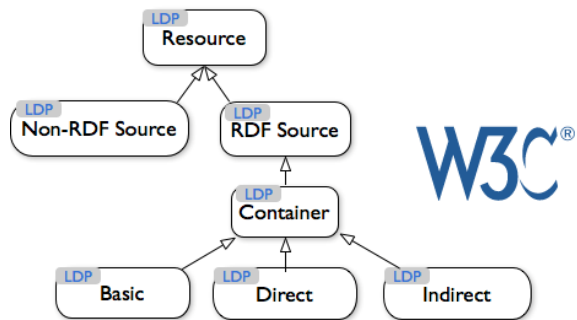


Compliance with (semantic) web standards as well as EU directives, vocabularies, etc..

Existing data architectures



Linked Data Platform

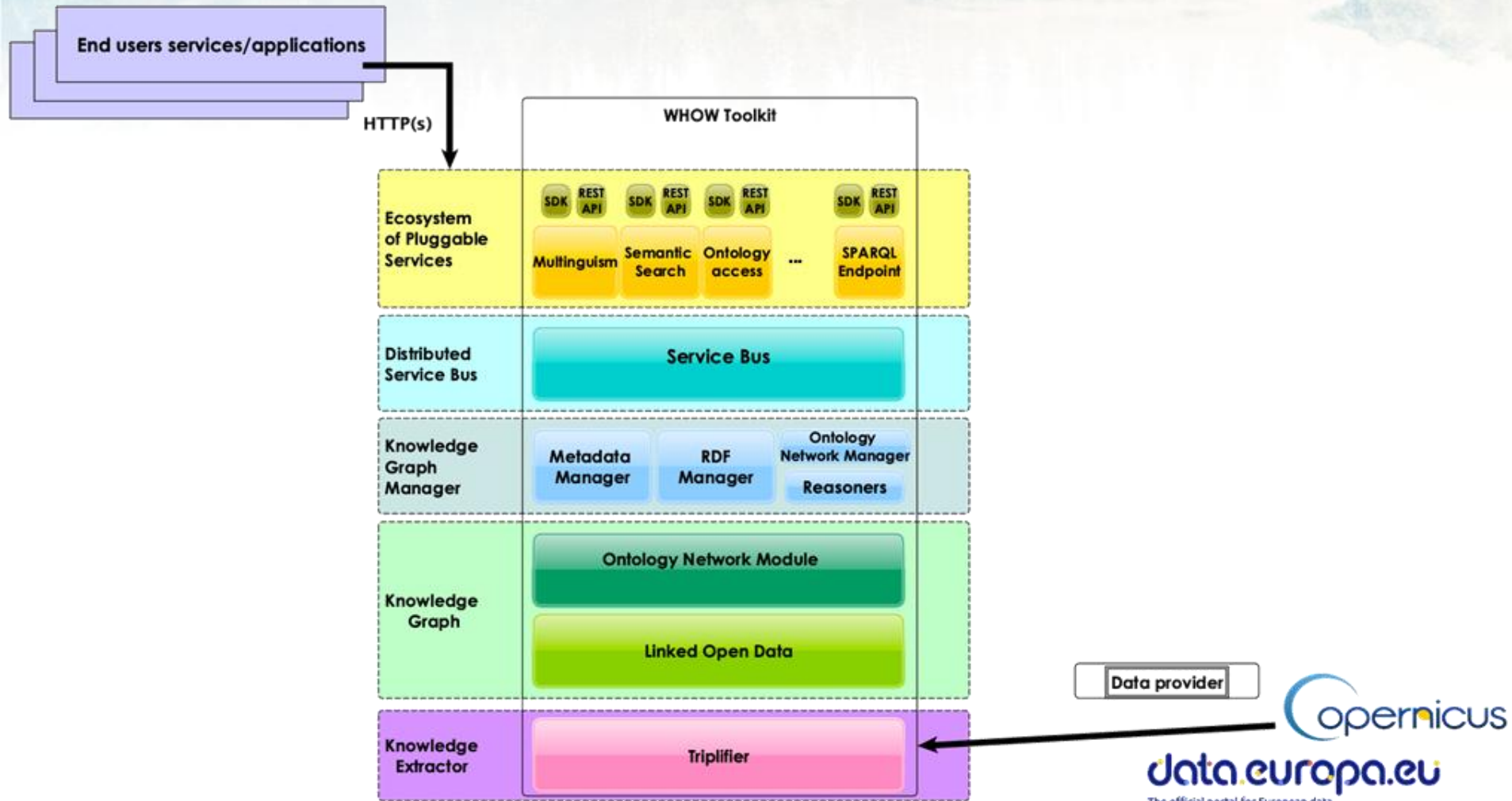


STARDOG

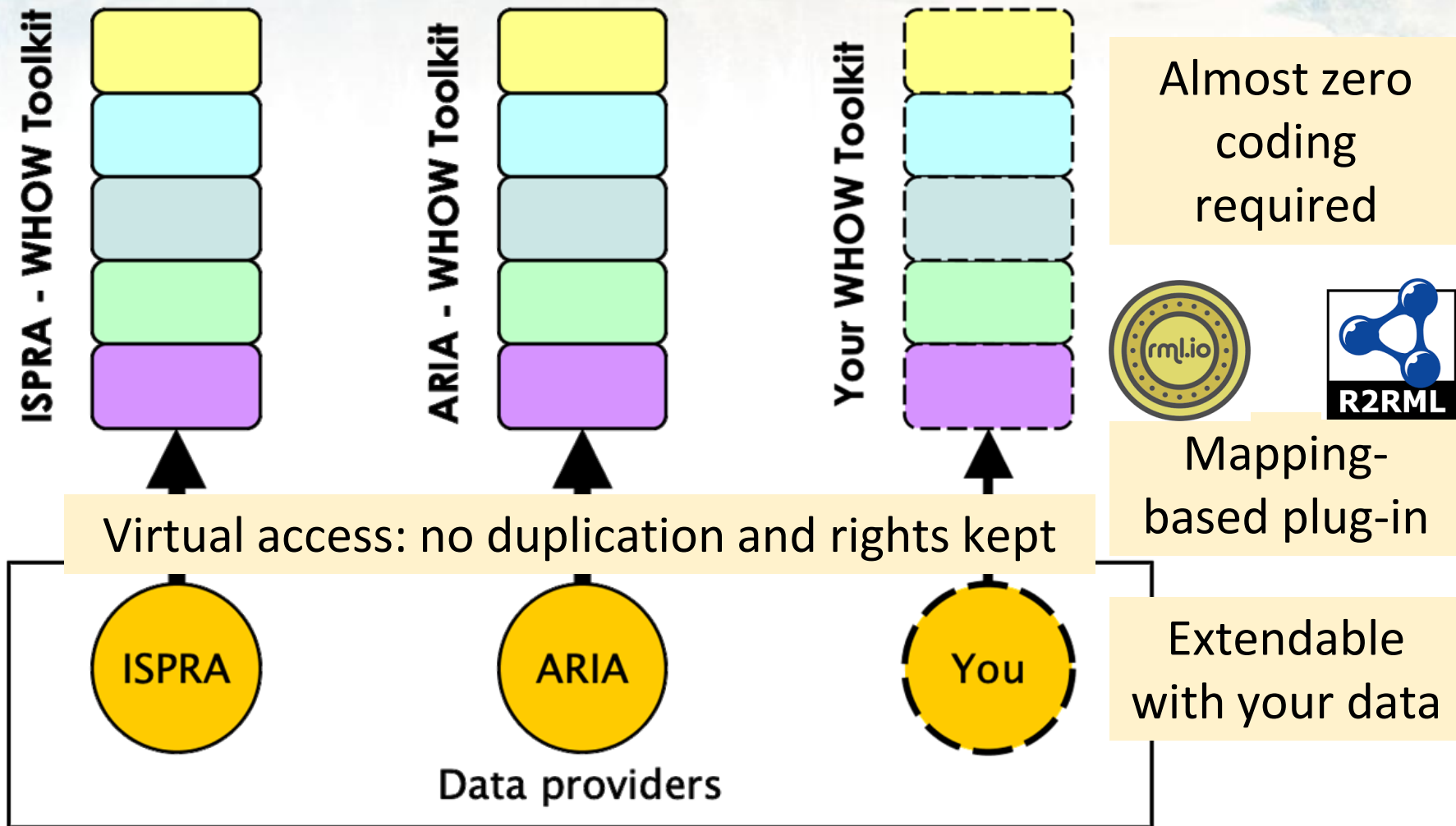
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WHOW Toolkit Architecture



Pluggable knowledge graphs with WHOW Toolkit



Technical challenges

- Integrating and harmonising heterogeneous data sources (see also semantic challenges)
- Combining and harmonising APIs implemented according to different principles and paradigms (REST, SOAP, Component-based, etc.)
- Providing access to **virtual** KGs
- Supporting knowledge discovery
- Ensuring data rightsholdership
- Dealing with big data (also dynamic data coming from external data sources such as Copernicus)



River water bodies monitoring dataset - Lombardy Region

Watercourse
and Type

Location/Geometry

Station

Sample
Date

Observed
Parameter

Observed
Value /
Indicator

BACINO IDROGRAFICO	CORSO D'ACQUA	CORPO IDRICO	PROVINCIA	COMUNE	COORD X	COORD Y	Codice Stazione	DATA CAMPIONAMENTO	SOSTANZA	CAS	UM	CONCENTRAZIONE
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	(MCPA) Acido 2,4 metilciclofenossiacetico	94-74.6	µg/L	<+0.03
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	2,4,4-T	83-76.5	µg/L	<+0.03
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	2,4-Dicloro	10506-46-9	µg/L	<+0.01
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	4,4'-DOP	72-54-8	µg/L	<+0.01
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	4,4'-DDE	72-55-9	µg/L	<+0.01
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Acetamidato	135410-30-7	µg/L	<+0.009
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Acido 2,4 diclorociclofenossiacetico (2,4-D)	94-75-7	µg/L	<+0.03
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Acidofen	74070-46-5	µg/L	<+0.03
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Acidoclor	15972-60-8	µg/L	<+0.02
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Acidoclor	71-52-3	mg/L CaHCO32	325
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Adrin	309-09-2	µg/L	<+0.01
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Ametrina	834-12-8	µg/L NH3	<+0.01
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Amoxicillina (non-chiral)	7664-41-7	µg/L	<+0.002
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Atrazina	1972-24-9	µg/L	<+0.02
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Atrazina-desetil	8190-65-4	µg/L	<+0.03
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Atrazina-desisopropil	1007-28-9	µg/L	<+0.03
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Acinrufofen	120162-50-2	µg/L	<+0.03
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Acido glicomalico	14706-52-9	mg/L N	<+0.019
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Acido nitrico	14797-59-6	mg/L N	1.8
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Acido ossalico	14797-66-0	mg/L N	0.508
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Acido Totale	17778-88-0	mg/L N	1.9
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Benzofurone Metile	83055-99-6	µg/L	<+0.03
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Benzoxone	29057-89-0	µg/L	<+0.03
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	BOD5	WHSR 3133-01-6	mg/L O2	<-3
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Bromacil	314-60-9	µg/L	<+0.03
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Calcio	7440-70-2	mg/L	82
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Chloracil	124486-18-7	µg/L	<+0.01
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Chloridano Totale	57-74-9	µg/L	<+0.01
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Chlorfenvinphos	470-90-6	µg/L	<+0.02
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Chlorfenzuron	1688-60-8	µg/L	<+0.03
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Cianazina	21729-46-2	µg/L	<+0.02
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Cibuzina	28199-99-5	µg/L	<+0.01
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Clofentanil	5103-71-8	µg/L	<+0.01
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Clofentanil	5103-74-2	µg/L	<+0.01
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Clopirifos	2921-88-2	µg/L	<+0.02
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Clopirifos Metile	5598-13-0	µg/L	<+0.02
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Cloprif	16887-50-6	mg/L O2	4.9
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Cromazolo	210860-82-5	µg/L	<+0.009
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	COD	CAS101031-3	mg/L O2	5
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Conducibilità elettrica a 20°C	WHSR 2142-01-8	µS/cm	395
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Cupressina	101209-02-1	µg/L	<+0.03
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	DDD	72-54-6-SUM	µg/L	<+0.01
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	DDE	72-55-6-SUM	µg/L	<+0.01
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	DDT	8017-34-3	µg/L	<+0.01
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Diclofenac	15307-88-5	µg/L	<+0.03
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Diclorodano ammido 2,6	2008-88-4	µg/L	<+0.03
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Dicofol	1155-92-2	µg/L	<+0.01
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Dieldrin	60-57-1	µg/L	<+0.01
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Dimetilato	60-51-5	µg/L	<+0.03
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Duram	330-54-1	µg/L	<+0.03
02.LO.SUBACQUALE	Guerna (Tormentè)	IT03N008600006.TLO	BG	Adriano San Rocco	574903	5063200	N0080600061tp1	03/04/2019	Duram	330-54-1	mg/L CaCO3	331



Groundwater monitoring dataset - Lombardy Region

Location		Station?	Sample Date	Observed Parameter	Geometry		Observed Parameter	Observed Value / Indicator
PROVINCIA	COMUNE	CODICE PP	Data di Campionamento	NOME STANDARD	COORD (EST)	COORD (NORD)	CAS	UM VALORE
BG	Arcene	PO0160110U0005	20/05/2019	Antimonio	548179	5047669	7440-36-0	µg/L <2
BG	Arcene	PO0160110U0005	20/05/2019	Arsenico	548179	5047669	7440-38-2	µg/L <1
BG	Arcene	PO0160110U0005	20/05/2019	Cadmio	548179	5047669	7440-43-9	µg/L <0,04
BG	Arcene	PO0160110U0005	20/05/2019	Cromo totale	548179	5047669	7440-47-3	µg/L <6
BG	Arcene	PO0160110U0005	20/05/2019	Cromo VI	548179	5047669	18540-29-9	µg/L <6
BG	Arcene	PO0160110U0005	20/05/2019	Mercurio	548179	5047669	7439-97-6	µg/L <0,03
BG	Arcene	PO0160110U0005	20/05/2019	Nichel	548179	5047669	7440-02-0	µg/L <2
BG	Arcene	PO0160110U0005	20/05/2019	Piombo	548179	5047669	7439-92-1	µg/L <2
BG	Arcene	PO0160110U0005	20/05/2019	Selenio	548179	5047669	7782-49-2	µg/L <2
BG	Arcene	PO0160110U0005	20/05/2019	Vanadio	548179	5047669	7440-62-2	µg/L <20
BG	Arcene	PO0160110U0005	20/05/2019	Zinco	548179	5047669	7440-66-6	µg/L <20
BG	Arcene	PO0160110U0005	20/05/2019	Boro	548179	5047669	7440-42-8	µg/L <50
BG	Arcene	PO0160110U0005	20/05/2019	Cianuri liberi	548179	5047669	57-12-5	µg/L <10
BG	Arcene	PO0160110U0005	20/05/2019	Cloruri	548179	5047669	16887-00-6	mg/l Cl 15
BG	Arcene	PO0160110U0005	20/05/2019	Fluoruri	548179	5047669	16984-48-8	µg/L <500
BG	Arcene	PO0160110U0005	20/05/2019	Ione Ammonio (NH4+)	548179	5047669	14798-03-9	µg/l <25
BG	Arcene	PO0160110U0005	20/05/2019	Nitriti	548179	5047669	14797-65-0	µg/L <35
BG	Arcene	PO0160110U0005	20/05/2019	Solfati	548179	5047669	14808-79-8	mg/l SO4 32
BG	Arcene	PO0160110U0005	20/05/2019	Benzo (a) pirene	548179	5047669	50-32-8	µg/l <0,01
BG	Arcene	PO0160110U0005	20/05/2019	Benzo (b) fluorantene	548179	5047669	205-99-2	µg/l <0,01
BG	Arcene	PO0160110U0005	20/05/2019	Benzo (g,h,i) perilene	548179	5047669	191-24-2	µg/l <0,01
BG	Arcene	PO0160110U0005	20/05/2019	Benzo (k) fluorantene	548179	5047669	207-08-9	µg/l <0,01
BG	Arcene	PO0160110U0005	20/05/2019	Dibenz(a,h)antracene	548179	5047669	53-70-3	µg/L <0,01
BG	Arcene	PO0160110U0005	20/05/2019	Indeno(1,2,3-cd)pirene	548179	5047669	193-39-5	µg/L <0,01
BG	Arcene	PO0160110U0005	20/05/2019	Cloruro di Vinile	548179	5047669	75-01-4	µg/l <0,25
BG	Arcene	PO0160110U0005	20/05/2019	Dicloroetano 1,1	548179	5047669	75-34-3	µg/l <0,1

National Tidal Network dataset - ISPRA

Station	Time	Observed Parameter	
station	period	parametro	csvUrl
"Ancona tide gauge (RMN 2009)"	"2014-01"	"Hydrometric level near Ancona"	http://dati.isprambiente.it/rmn/ancona/hydrometric.201401.csv
"Ancona tide gauge (RMN 2009)"	"2014-01"	"Air Pressure near Ancona"	http://dati.isprambiente.it/rmn/ancona/airPres.201401.csv
"Ancona tide gauge (RMN 2009)"	"2014-02"	"Hydrometric level near Ancona"	http://dati.isprambiente.it/rmn/ancona/hydrometric.201402.csv
"Ancona tide gauge (RMN 2009)"	"2014-02"	"Air Pressure near Ancona"	http://dati.isprambiente.it/rmn/ancona/airPres.201402.csv
"Ancona tide gauge (RMN 2009)"	"2014-03"	"Hydrometric level near Ancona"	http://dati.isprambiente.it/rmn/ancona/hydrometric.201403.csv
"Ancona tide gauge (RMN 2009)"	"2014-03"	"Air Pressure near Ancona"	http://dati.isprambiente.it/rmn/ancona/airPres.201403.csv
"Ancona tide gauge (RMN 2009)"	"2014-04"	"Hydrometric level near Ancona"	http://dati.isprambiente.it/rmn/ancona/hydrometric.201404.csv
"Ancona tide gauge (RMN 2009)"	"2014-04"	"Air Pressure near Ancona"	http://dati.isprambiente.it/rmn/ancona/airPres.201404.csv
"Ancona tide gauge (RMN 2009)"	"2014-05"	"Hydrometric level near Ancona"	http://dati.isprambiente.it/rmn/ancona/hydrometric.201405.csv
"Ancona tide gauge (RMN 2009)"	"2014-05"	"Air Pressure near Ancona"	http://dati.isprambiente.it/rmn/ancona/airPres.201405.csv
"Ancona tide gauge (RMN 2009)"	"2014-06"	"Hydrometric level near Ancona"	http://dati.isprambiente.it/rmn/ancona/hydrometric.201406.csv
"Ancona tide gauge (RMN 2009)"	"2014-06"	"Air Pressure near Ancona"	http://dati.isprambiente.it/rmn/ancona/airPres.201406.csv
"Ancona tide gauge (RMN 2009)"	"2014-07"	"Hydrometric level near Ancona"	http://dati.isprambiente.it/rmn/ancona/hydrometric.201407.csv
"Ancona tide gauge (RMN 2009)"	"2014-07"	"Air Pressure near Ancona"	http://dati.isprambiente.it/rmn/ancona/airPres.201407.csv
"Ancona tide gauge (RMN 2009)"	"2014-08"	"Hydrometric level near Ancona"	http://dati.isprambiente.it/rmn/ancona/hydrometric.201408.csv
"Ancona tide gauge (RMN 2009)"	"2014-08"	"Air Pressure near Ancona"	http://dati.isprambiente.it/rmn/ancona/airPres.201408.csv
"Ancona tide gauge (RMN 2009)"	"2014-09"	"Hydrometric level near Ancona"	http://dati.isprambiente.it/rmn/ancona/hydrometric.201409.csv
"Ancona tide gauge (RMN 2009)"	"2014-09"	"Air Pressure near Ancona"	http://dati.isprambiente.it/rmn/ancona/airPres.201409.csv
"Ancona tide gauge (RMN 2009)"	"2014-10"	"Hydrometric level near Ancona"	http://dati.isprambiente.it/rmn/ancona/hydrometric.201410.csv
"Ancona tide gauge (RMN 2009)"	"2014-10"	"Air Pressure near Ancona"	http://dati.isprambiente.it/rmn/ancona/airPres.201410.csv
"Ancona tide gauge (RMN 2009)"	"2014-11"	"Hydrometric level near Ancona"	http://dati.isprambiente.it/rmn/ancona/hydrometric.201411.csv
"Ancona tide gauge (RMN 2009)"	"2014-11"	"Air Pressure near Ancona"	http://dati.isprambiente.it/rmn/ancona/airPres.201411.csv
"Ancona tide gauge (RMN 2009)"	"2014-12"	"Hydrometric level near Ancona"	http://dati.isprambiente.it/rmn/ancona/hydrometric.201412.csv
"Ancona tide gauge (RMN 2009)"	"2014-12"	"Air Pressure near Ancona"	http://dati.isprambiente.it/rmn/ancona/airPres.201412.csv
"Ancona tide gauge (RMN 2009)"	"2015-01"	"Hydrometric level near Ancona"	http://dati.isprambiente.it/rmn/ancona/hydrometric.201501.csv
"Ancona tide gauge (RMN 2009)"	"2015-01"	"Air Pressure near Ancona"	http://dati.isprambiente.it/rmn/ancona/airPres.201501.csv
"Ancona tide gauge (RMN 2009)"	"2015-02"	"Hydrometric level near Ancona"	http://dati.isprambiente.it/rmn/ancona/hydrometric.201502.csv

Time	Observed Value
UTC	Level
01/06/2014 00:00	-5.2
01/06/2014 00:10	-4.4
01/06/2014 00:20	-3.3
01/06/2014 00:30	-6
01/06/2014 00:40	-3.8
01/06/2014 00:50	-4.5
01/06/2014 01:00	-6.2
01/06/2014 01:10	-7.7
01/06/2014 01:20	-10.7
01/06/2014 01:30	-10.7
01/06/2014 01:40	-11.7
01/06/2014 01:50	-13.8
01/06/2014 02:00	-14
01/06/2014 02:10	-16.1
01/06/2014 02:20	-17.2
01/06/2014 02:30	-15.3
01/06/2014 02:40	-17
01/06/2014 02:50	-22.2
01/06/2014 03:00	-20.7
01/06/2014 03:10	-20.8
01/06/2014 03:20	-24.4
01/06/2014 03:30	-21.6
01/06/2014 03:40	-27.4
01/06/2014 03:50	-28.8

Inland waters monitoring dataset - Friuli Venezia Giulia Region

Location Watercourse, Type and characteristics Sample Date Observed Parameter Observed Value / Indicator Geometry

Provi...	Com...	Nom...	Codic...	Codic...	Profo...	Anno	Data...	CAS	Para...	UM	Risul...	LAT
PN	Barcis	IT06AL41 ...	ITALW08L...	IT06PNL...	F	2.012	2012 Aug ...	7723-14-0	Fosforo t...	mg/l P	0.00232	46
PN	Barcis	IT06AL41 ...	ITALW08L...	IT06PNL...	F	2.012	2012 Nov...	7723-14-0	Fosforo t...	mg/l P	0.00031	46
PN	Barcis	IT06AL41 ...	ITALW08L...	IT06PNL...	F	2.013	2013 Apr ...	7723-14-0	Fosforo t...	mg/l P	0.00114	46
PN	Barcis	IT06AL41 ...	ITALW08L...	IT06PNL...	F	2.013	2013 Jun ...	7723-14-0	Fosforo t...	mg/l P	0.00078	46
PN	Barcis	IT06AL41 ...	ITALW08L...	IT06PNL...	F	2.013	2013 Jul 3...	7723-14-0	Fosforo t...	mg/l P	0.00099	46
PN	Barcis	IT06AL41 ...	ITALW08L...	IT06PNL...	F	2.013	2013 Sep ...	7723-14-0	Fosforo t...	mg/l P	0.00066	46
PN	Barcis	IT06AL41 ...	ITALW08L...	IT06PNL...	F	2.013	2013 Nov...	7723-14-0	Fosforo t...	mg/l P	0.00228	46
UD	Trasaghis	IT06AL43 ...	ITALW10T...	IT06UDL...	F	2.012	2012 Apr ...	7723-14-0	Fosforo t...	mg/l P	0.00252	46
UD	Trasaghis	IT06AL43 ...	ITALW10T...	IT06UDL...	F	2.012	2012 May...	7723-14-0	Fosforo t...	mg/l P	0.00170	46
UD	Trasaghis	IT06AL43 ...	ITALW10T...	IT06UDL...	F	2.012	2012 Aug ...	7723-14-0	Fosforo t...	mg/l P	0.00273	46
UD	Trasaghis	IT06AL43 ...	ITALW10T...	IT06UDL...	F	2.012	2012 Sep ...	7723-14-0	Fosforo t...	mg/l P	0.00570	46
UD	Trasaghis	IT06AL43 ...	ITALW10T...	IT06UDL...	F	2.012	2012 Nov...	7723-14-0	Fosforo t...	mg/l P	0.00762	46
UD	Trasaghis	IT06AL43 ...	ITALW10T...	IT06UDL...	F	2.013	2013 Feb ...	7723-14-0	Fosforo t...	mg/l P	0.00100	46
UD	Trasaghis	IT06AL43 ...	ITALW10T...	IT06UDL...	F	2.013	2013 Apr ...	7723-14-0	Fosforo t...	mg/l P	0.00223	46

Groundwater monitoring dataset - Umbria Region

COD_STAZ_SOTT	Codice stazione
ANNO	Anno
CAMPAGNA	Campagna
DATA_PRELIEVO	Data prelievo
TRICLOROETAN01R	1,1,1 TriCloroEtano (µg/l)
TETRACLOROETAN01R	1,1,2,2-Tetracloroetano (µg/l)
TRICLOROETAN02R	1,1,2-Tricloroetano (µg/l)
DICLOROETAN01R	1,1-Dicloroetano (µg/l)
DICLOROETILENE1R	1,1-Dicloroetilene (µg/l)
TRICLOROPROPANO1R	1,2,3-Tricloropropano (µg/l)
TRICLOROBENZENE1R	1,2,4-Triclorobenzene (µg/l)
DIBROMOETAN01R	1,2-Dibromoetano (µg/l)
DICLOROETAN02R	1,2-Dicloroetano (µg/l)
DICLOROETILENE2R	1,2-Dicloroetilene (µg/l)
DICLOROPROPANO1R	1,2-Dicloropropano (µg/l)
DICLOROPROPENE1R	1,3-Dicloropropene (µg/l)
BROMODICLOROMETAN01R	Bromodiclorometano (µg/l)
BROMOFORMIO1R	Bromoformio (µg/l)
CARBONIOETRACLORURO1R	Carbonio tetracloruro (µg/l)
CLOROBENZENE1R	Clorobenzene (µg/l)
CLOROETAN01R	Cloroetano (µg/l)
CLOROFORMIO1R	Cloroformio (µg/l)
DIBROMOCLOROETAN01R	Dibromoclorometano (µg/l)
DIBROMOETILENE1R	Dibromoetilene (µg/l)
TETRACLOROETILENE1R	Tetracloroetilene (µg/l)
TRICLOROETILENE1R	Tricloroetilene (µg/l)
VINILECLORURO1R	Vinile Cloruro (µg/l)
QUOTA	Quota (m slm)
TIPO_PUNTO	Tipo punto
COD_DIST	Codice Distretto Idrografico (DLgs. 152/06)
PRO_COM	Codice ISTAT comunale
PROFONDITA	Profondità (m)
HTP_M	Altezza testa pozzo (m pc)
USO	Uso
COD_IDROGEO	Complesso idrogeologico
COD_IDRO_S	Codice corpo idrico sotterraneo (DLgs. 152/06)
COD_IDRO_15299	Codice corpo idrico sotterraneo (DLgs. 152/99)
COD_VULNER	Codice Zona vulnerabile nitrati
POINT_X	Coordinata X
POINT_Y	Coordinata Y
NAME_IDRO_S	Nome corpo idrico sotterraneo (DLgs. 152/06)

Station
Time

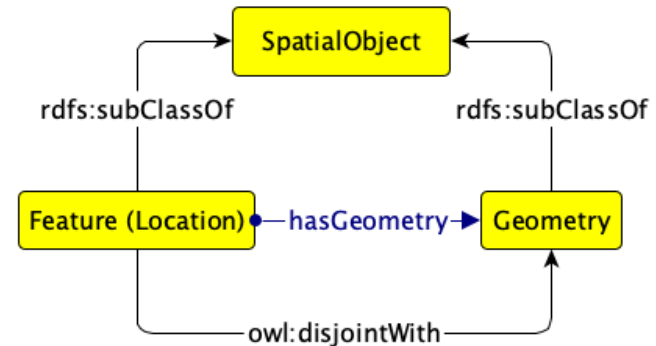
Observed Parameter and
Observed Value

Watercourse, types and
characteristics

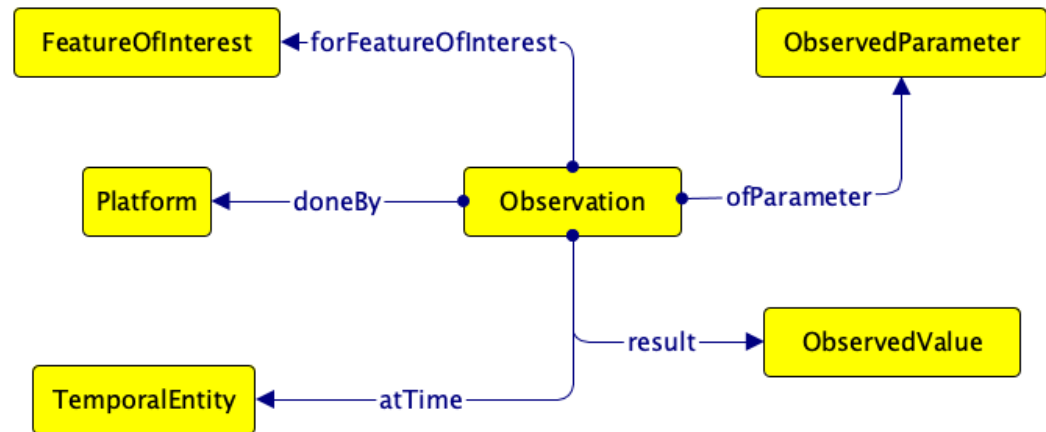
Geometry
Watercourse name

Modelling patterns

Location - Geometry

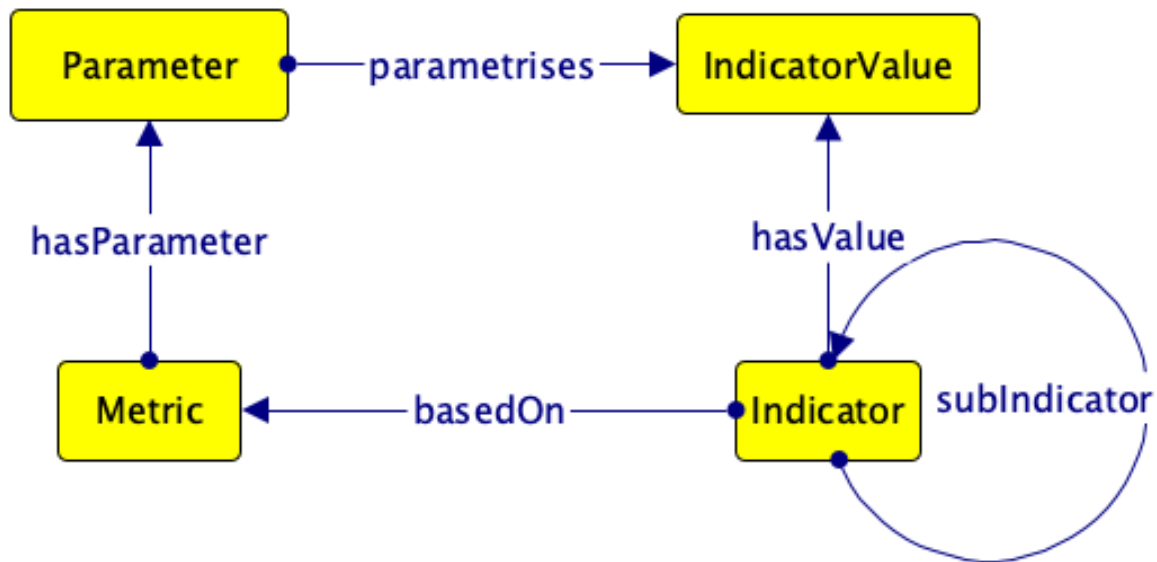


Observation - Measure



Modelling patterns

Indicator - Metric - Parameter



Existing ontologies

Location - Geometry

CLV-AP_IT (Core Location Vocabulary - Italian Application Profile) based on

- European Core Location Vocabulary
- INSPIRE Address data model

Observation - Measure

IoT-AP_IT (Internet of Things - Italian Application Profile) based on

- Semantic Sensor Network
- INSPIRE Observation / Measure data model

ISPRA ontologies aligned with the Italian ones

Existing ontologies

**Indicator - Metric -
Parameter**

Indicator-AP_IT (Indicator Ontology - Italian Application Profile) linked to

- IoT-AP_IT for real time observations that contribute to create data sources on which compute indicators

ISPRA ontologies aligned with the Italian ones

Required specializations (?)

Location - Geometry

Types of watercourses

Definition of a specific controlled vocabulary aligned with GEMET and Italian registries system (?)

<https://www.eionet.europa.eu/gemet/en/group/4125>

<https://registry.geodati.gov.it/dbgt/0401>

<https://registry.geodati.gov.it/dbgt/0402>

Observation - Measure

Specialisations for CAS number and other data types (?)

Definition of a specific controlled vocabulary for chemical parameters?

Water Health Open Knowledge

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