PHIRI
Population Health Information Research Infrastructure

DOCUMENTATION AND USER GUIDE FOR THE HEALTH INFORMATION PORTAL

Metadata descriptions, version 1.1

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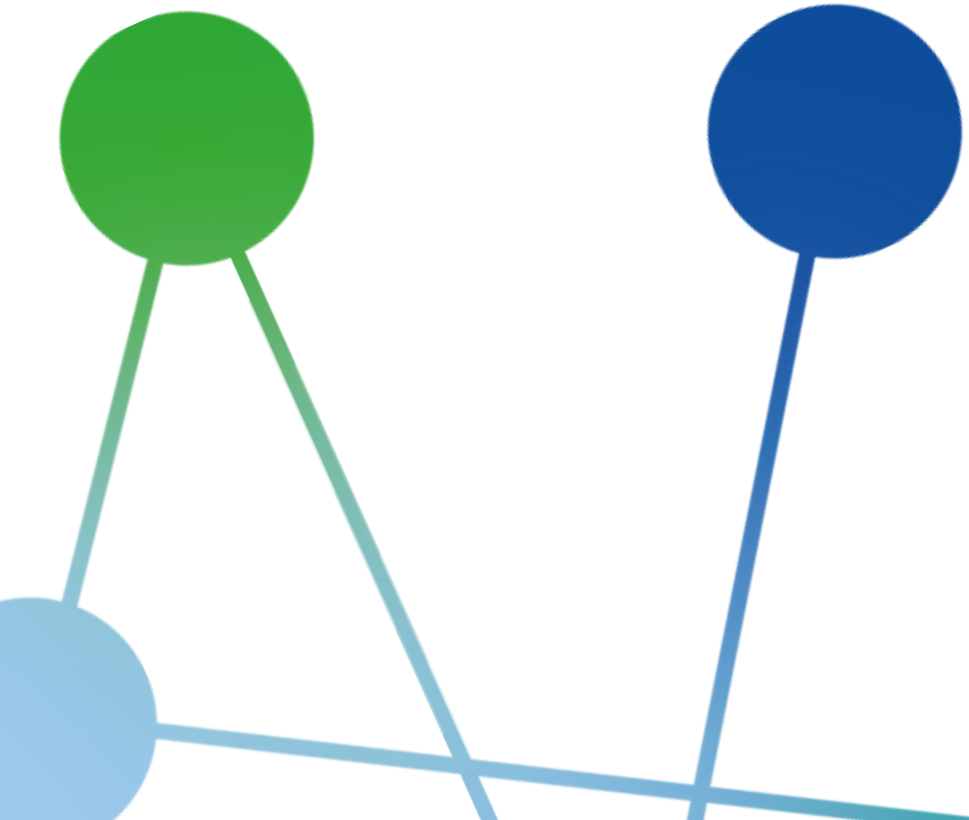

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Version history

Version	Date	Comments	Revised by
1.01	2022-04-05	Correction of type in the one of the author names	Hanna Tolonen
1.1	2023-11-15	Health DCAT-AP and Schema.org information added	Mari Mäkinen, Pascal Derycke, Hanna Tolonen

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Abbreviations and acronyms

CV	Controlled vocabulary
DCAT-AP	Data Catalogue voculabary – Application Profile
DDI	Data Documentation Initiative
ELSI	Ethical, Legal and Social Implications
FAIR	Findable, Accessible, Interoperable, and Reusable
GDPR	General Data Protection Regulation
INFACT	Joint Action on Information for Action
ISO	International Standardization Organization
MeSH	Medical Subject Headings
NUTS	Nomenclature of territorial unit for statistics
PHIRI	Population Health Information Research Infrastructure
PI	Principal Investigator
URL	Uniform Resource Locator

1. Introduction and background

1.1. PHIRI- Population Health Information Research Infrastructure

The Population Health Information Research Infrastructure (PHIRI) project (https://www.phiri.eu/) aims to:

- Provide a Health Information portal for COVID-19 with FAIR catalogues on health and health care data for structured information exchange across European countries. It facilitates access to and use of COVID-19 relevant population health data provided by EU countries' public health bodies represented in the PHIRI consortium. It provides the services and tools necessary for researchers to link different data sources and to use European data in a GDPR compliant, federated way.
- Provide structured exchange between countries on COVID-19 best practices and expertise. PHIRI allows researchers to provide relevant and evidence-based information ready for use in research, and decision-making processes by citizens, clinicians, public health practitioners and policy makers.
- Promote interoperability and tackle health information inequalities. PHIRI supports researchers and public health bodies to research queries related to COVID-19 in FAIR and ELSI compliant manners. It provides capacity building for the management of COVID-19 relevant population health and healthcare data.

1.2. HIP - European Health Information Portal

The Health Information Portal (HIP) is a web-based platform (https://www.healthinformationportal.eu/) hosting information about National Nodes, Research Networks, health information sources, i.e. data sources, health information studies and projects, health information publications and capacity building activities. For each of the modules, a standardized information structure has been developed. Different modules are interlinked with each other through specific elements such as country or institution.

HIP aims to serve as a one-stop-shop for health information in Europe. It will support researchers and decision-makers to find and access available information, relevant actors, and networks.

1.3. Purpose of this document

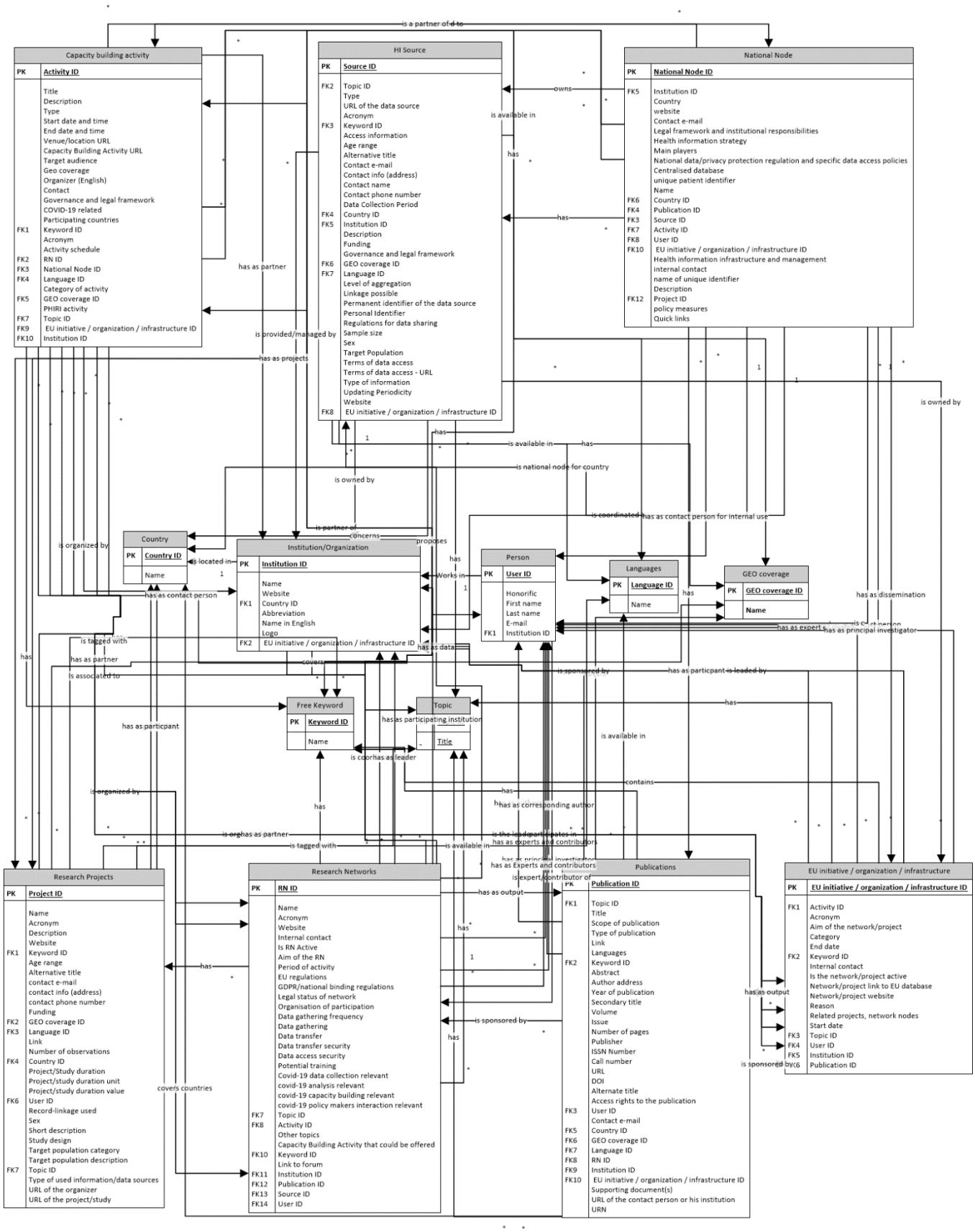
This document will provide an overview to the data model of the HIP and metadata elements of specific modules of the HIP.

2. General overview of the HIP

The HIP is based on a Web Content Management System (Web CMS) available as Open Source: DRUPAL (https://www.drupal.org/). The server runs in the premises at Sciensano, Belgium (https://www.sciensano.be/en) on a LINUX operating system.

DRUPAL is a versatile platform allowing to build robust and complex solutions, namely thanks to thousands of modules available for free. Content management is very easy and doesn't require in-depth knowledge of ICT technologies. Access to the website is public for searching and reading information, but only a set of approved people (authenticated with a username and password) are allowed to add or update content.

The data model implemented on the HIP is presented below


Capacity building activity
PK Activity ID
Title
Description
Type
Start date and time
End date and time
Venue/location URL
Capacity Building Activity URL
Target audience
Geo coverage
Organizer (English)
Contact
Governance and legal framework
COVID-19 related
Participating countries
FK1 Keyword ID
Acronym
Activity schedule
FK2 RN ID
FK3 National Node ID
FK4 Language ID
Category of activity
FK5 GEO coverage ID
PHIRI activity
FK7 Topic ID
FK9 EU initiative / organization / infrastructure ID
FK10 Institution ID
HI Source
PK Source ID
FK2 Topic ID
Type
URL of the data source
Acronym
FK3 Keyword ID
Access information
Age range
Alternative title
Contact e-mail
Contact info (address)
Contact name
Contact phone number
Data Collection Period
FK4 Country ID
FK5 Institution ID
Description
Funding
Governance and legal framework
FK6 GEO coverage ID
FK7 Language ID
Level of aggregation
Linkage possible
Permanent identifier of the data source
Personal Identifier
Regulations for data sharing
Sample size
Sex
Target Population
Terms of data access
Terms of data access - URL
Type of information
Updating Periodicity
Website
FK8 EU initiative / organization / infrastructure ID
National Node
PK National Node ID
FK5 Institution ID
Country
website
Contact e-mail
Legal framework and institutional responsibilities
Health information strategy
Main players
National data/privacy protection regulation and specific data access policies
Centralised database
unique patient identifier
Name
FK6 Country ID
FK4 Publication ID
FK3 Source ID
FK7 Activity ID
FK8 User ID
FK10 EU initiative / organization / infrastructure ID
Health information infrastructure and management
internal contact
name of unique identifier
Description
FK12 Project ID
policy measures
Quick links
is a partner of-d to
owns
is available in
has
has as partner
is provided/managed by
has as projects
is owned by
is national node for country
is coordinated
has as contact person for internal use
is partner of
concerns
proposes
Country
PK Country ID
Name
is organized by
is located in
has as contact person
Institution/Organization
PK Institution ID
Name
Website
FK1 Country ID
Abbreviation
Name in English
Logo
FK2 EU initiative / organization / infrastructure ID
Person
PK User ID
Honorific
First name
Last name
E-mail
FK1 Institution ID
Works in
Languages
PK Language ID
Name
GEO coverage
PK GEO coverage ID
Name
has as dissemination
has as principal investigator
is tagged with
has as partner
is associated to
has as data
covers
is sponsored by
has as particpant
is leaded by
Free Keyword
PK Keyword ID
Name
Topic
PK Title
has as participating institution
has as participant
is available in
has as corresponding author
has as Experts and contributors
is expert contributor of
has as output
contains
is organized by
is tagged with
covers countries
Research Projects
PK Project ID
Name
Acronym
Description
Website
FK1 Keyword ID
Age range
Alternative title
contact e-mail
contact info (address)
contact phone number
Funding
FK2 GEO coverage ID
FK3 Language ID
Link
Number of observations
FK4 Country ID
Project/Study duration
Project/study duration unit
Project/study duration value
FK6 User ID
Record-linkage used
Sex
Short description
Study design
Target population category
Target population description
FK7 Topic ID
Type of used information/data sources
URL of the organizer
URL of the project/study
Research Networks
PK RN ID
Name
Acronym
Website
Internal contact
Is RN Active
Aim of the RN
Period of activity
EU regulations
GDPR/national binding regulations
Legal status of network
Organisation of participation
Data gathering frequency
Data gathering
Data transfer
Data transfer security
Data access security
Potential training
Covid-19 data collection relevant
covid-19 analysis relevant
covid-19 capacity building relevant
covid-19 policy makers interaction relevant
FK7 Topic ID
FK8 Activity ID
Other topics
Capacity Building Activity that could be offered
FK10 Keyword ID
Link to forum
FK11 Institution ID
FK12 Publication ID
FK13 Source ID
FK14 User ID
Publications
PK Publication ID
FK1 Topic ID
Title
Scope of publication
Type of publication
Link
Languages
FK2 Keyword ID
Abstract
Author address
Year of publication
Secondary title
Volume
Issue
Number of pages
Publisher
ISSN Number
Call number
URL
DOI
Alternate title
Access rights to the publication
FK3 User ID
Contact e-mail
FK5 Country ID
FK6 GEO coverage ID
FK7 Language ID
FK8 RN ID
FK9 Institution ID
FK10 EU initiative / organization / infrastructure ID
Supporting document(s)
URL of the contact person or his institution
URN
EU initiative / organization / infrastructure
PK EU initiative / organization / infrastructure ID
FK1 Activity ID
Acronym
Aim of the network/project
Category
End date
FK2 Keyword ID
Internal contact
Is the network/project active
Network/project link to EU database
Network/project website
Reason
Related projects, network nodes
Start date
FK3 Topic ID
FK4 User ID
FK5 Institution ID
FK6 Publication ID

3. Modules of the HIP

HIP includes six different modules: National Nodes, European Research Networks, Health Information Sources, Health Information studies/research projects, Capacity building activities, and Publications. Elements relevant for each module are described below.

3.1 National Nodes

National Node (https://www.phiri.eu/sites/phiri.eu/files/2021-05/One%20pager%20NN.pdf) is an organizational entity, often linked to a national institutions or governmental units that functions as a national liaison and brings together relevant national stakeholders in the country in a systematic way.

Elements recorded for the national nodes (mandatory elements marked with *):

- Last updated*
- Title*
- Contact
    - Internal contact (e-mail)*
    - Country*
    - Coordinating institution*
        - Logo
        - Name*
        - URL*
        - Country*
    - Contact person for health information portal*
        - First name*
        - Last name*
        - E-mail*
    - National node web site (URL)
    - National node description (free text)
- Overview
    - Legal framework and institutional responsibilities
    - Health information strategy
    - Health information infrastructure and management
    - Existence of a unique patient identifier or general personal identifier
    - Name of identifier (* when 'Yes' to previous element)
    - Health information sources and players
    - National data/privacy protection regulation and specific data access policies
- Health information sources & institutions (uses the metadata template of HI sources)
- Health information dissemination (uses the metadata template of Publications)
- National projects (uses the metadata template of Health Information Studies/Projects)
- COVID-19 policy measures applied in the country

3.2 European Research Networks

European Research Network is an active network of national and/or regional experts from several countries that perform comparative research in a specific health area (information domain).

Elements recorded for the research networks (mandatory elements marked with *):

- Last updated*
- Description
    - Is the research network active*
        - Reason: Text field, Mandatory if value is "No"*

    - Start date
    - Internal contact* (e-mail)*
    - Name of research network*
    - Acronym
    - Network website (URL)*
    - Topics
    - Free Keywords
    - Aim of the research network*
- Legal
    - EU regulation
    - GDPR/national binding regulations
    - Legal status of network
- Coordination
    - Leading institute
        - Logo
        - Name*
        - URL*
        - Country*
    - Principal investigator*
        - First name*
        - Last name*
        - E-mail
        - Institute
            - Logo
            - Name*
            - URL*
            - Country*
- Partners
    - Participating institutions*
        - Logo
        - Name*
        - URL*
        - Country*
    - Experts and contributors
        - Person
            - First name*
            - Last name*
            - E-mail
            - Institute
    - Organization of participation
        - Organization of participation – other (text field, Mandatory if value is 'Other, describe')*
    - Related projects, network nodes (uses the metadata template of Health Information Studies/Projects)
- Data (uses the metadata template of Health information Sources)
- Interoperability
    - How is the data gathered from the partners?
    - How often do you collect data from partners?
    - How is the data transferred from partners to RN?
    - How do you ensure data security for data transfer?
    - How do you ensure data security for data access?
- Outputs (uses the meta data template of Publications)
- Training
    - Training (uses the meta data template of Capacity building)
    - Capacity building activities that could be offered
- COVID-19

    - Is the data collected relevant to COVID-19?
        - Describe the frequency, scope, ...
    - Is the analysis relevant to COVID-19?
        - Please describe your activities (Mandatory if value “Yes” is select for related field)
    - Is the capacity building relevant to COVID-19?
        - Please describe your activities (Mandatory if value “Yes” is select for related field)
    - Is there interaction with policy makers/knowledge translation relevant to COVID-19?
        - Please describe your activities (Mandatory if value “Yes” is select for related field)
- Topics/Forum
    - Are there any topics covered by the research network, but that could not be reported in the previous sections?
    - If a forum or discussion platform is dedicated to the research network, please enter link here (URL)

3.3 Health Information Sources

Health information sources are data on health and health care in the EU Member States involved in the PHIRI.

Elements recorded for the health information sources (mandatory elements marked with *):

- Last update*
- Overview
    - Title*
    - Alternative title
    - Abbreviation
    - Type of information*
    - URL of the data source*
    - Description
    - Governance and Legal Framework
    - Funding
    - Topics*
    - Free keywords*
- Demographics
    - Geo coverage*
    - Country(ies)*
    - Target population - fixed*
    - Age range – lower
    - Age range – upper
    - Number of observations
    - Sex*
- Dataset
    - Data collection period – starting date
    - Data collection period – end date
    - Language of data source*
    - Updating periodicity
    - Personal identifier*
    - Level of aggregation*
    - Linkage possible
- Access
    - Permanent identifier of the data source
    - Terms of data access - URL

    - Terms of data access
    - Regulations for data sharing
- Contact/Data owner
    - Data owner (uses the metadata elements of institutions)*
    - Data owner English
    - Data owner acronym
    - URL data owner
    - Contact name*
    - Contact e-mail*
    - Contact phone number
    - Contact info (address)*

3.4 Health Information Studies/Research Projects

Elements recorded for the studies and projects (mandatory elements marked with *):

- Last update*
- Overview
    - Title*
    - Alternative title
    - Abbreviation
    - Study design*
    - Type of used information/type of used data sources*
    - URL of the project/study*
    - Description*
    - Funding*
    - Project/study duration* (if information available, then)
        - Project/study duration value
        - Project/study duration unit
    - Language*
    - Record-linkage used*
    - Topics*
    - Free keywords *
- Demographics
    - GEO coverage*
    - Country*
    - Participating countries*
    - Target population* (list of values)
    - Target population* (free text)
    - Age range* (If information available, then) (max and min ages of the studied population)
        - Age – lower
        - Age - upper
    - Number of observations*
    - Sex*
- Contact
    - Project Principal Investigator/Contact person*
    - URL organizer
    - Contact info (address)
    - Contact phone*
    - Contact e-mail*

3.5 Capacity Building Activities

Elements recorded for the capacity building activities (mandatory elements marked with *):

- Last updated*
- General information on the activity
    - Title*
    - Acronym
    - Activity Description*
    - Topics
    - Free keywords
    - COVID-19 Related Activity
    - PHIRI Related Activity
    - Associated research networks and national nodes (uses the list research networks and national nodes defined by their specific metadata template)
- Venue/Location of the Activity
    - URL of the activity
    - Type of setting*
    - Category of capacity building activity*
    - Activity Schedule*
    - Activity Local Date
        - For monthly schedule and fixed date(s)
            - Start date
            - End date
            - Registration deadline
    - Venue/Location URL
    - Target audience
    - Language*
    - Available in other languages
    - Geo coverage
- Organiser & Contact Information
    - Leading Organizer Name*: (uses the metadata elements of institutions)
    - Name in national language.
    - Leading organizer (English)
    - Leading organizer acronym
    - URL organizer
    - Organizer Country
    - Partner Name
    - Activity Contact person
    - Contact info (address)

3.6 Publications

Publications cover several types of publications including scientific peer-review publications, country reports, fact sheets or leaflets, guidelines, infographics, legislations and regulations, newsletters, policy briefs, portals or websites, presentations, reports, video presentations and other documents. Therefore, some of the listed elements under Publication details are relevant only for specific publication types as identified below.

Element record for the publications (mandatory elements marked with *):

- Last update*
- Description
    - Title*

    - Alternative title
    - Description/Abstract*
    - Language*
    - Free keywords
    - Topic*
    - Sponsor
    - Supporting document(s)
- Author(s)
    - Author
- Publication details
    - Journal
    - Report series
    - Publisher
    - Publication year
    - Volume
    - Issue
    - Pages
    - Site owner
- Location
    - DOI
    - URN
    - ISSN
    - URL of the publication
    - Access rights to the publication
- Geography
    - Country(ies)*
    - GEO coverage
- Contact
    - Contact information
    - Contact info (address)
    - Contact phone
    - Contact e-mail
    - URL of the contact person or his institution
- Publication date

4. Best practices

4.1 Data Documentation Initiative (DDI)

DDI (https://ddialliance.org) is an international standard for describing the data produced by surveys and other observational methods in the social, behavioural, economic, and health sciences. DDI is a free standard that can document and manage different stages in the research data lifecycle, such as conceptualization, collection, processing, distribution, discovery, and archiving.

PHIRI metadata model for Health Information Sources has been mapped to DDI Lifecycle 3.2. It is designed to document and manage data across the entire life cycle, from conceptualization to data publication, analysis and beyond. It encompasses all the DDI-Codebook specification and extends it. This version also supports improvements in Classification management (based on GSIM / Neuchatel), non-survey data collection (Measurements), sampling, weighting, questionnaire Design and support for DDI as a Property Graph.

Main five section of the DDI are:

1. Document description.

2. Study description including dataset creators, keywords, abstract, sampling procedures, data collection, units of observation, target population, terms of access.
3. Data file description including data structure and format, number of variables, size of files, software.
4. Variable description including variable and value labels and question texts.
5. Other study-related material includes information related to the data that is not described elsewhere.

For example, CESSDA data catalogue (https://datacatalogue.cessda.eu/) uses DDI Lifecycle 3.2.

4.2 DCAT and DCAT-AP

Data Catalogue vocabulary (DCAT) (https://www.w3.org/TR/vocab-dcat-2/) is a metadata standard developed by W3C (World Wide Web Consortium) for publication of data descriptions. It has orginally been developed to support data catalogues of public sectors. DCAT-AP (Data Catalogue vocabulary – Application profile) (https://joinup.ec.europa.eu/collection/semic-support-centre/solution/dcat-application-profile-data-portals-europe/news/get-started-dcat-ap) has been developed for needs of data portals of Europe. The aim of the DCAT-AP is to ensure interoperability of data sources across Europe.

Currently the health extension of DCAT-AP is under development to support data documentation under the European Health Data Space (EHDS) regulation (proposal).

4.3 Schema.org

Schema.org is a metadata standard used to provide structured descriptions for Internet, web pages, e-mails etc. (https://schema.org/). Schema.org supports major search engines by improving machine readability of web pages.

4.4 Dublin Core™ Metadata Initiative (DCMI)

Dublin Core™ Metadata Initiative (DCMI) (https://dublincore.org/) is an organization supporting innovation in metadata design and best practices across the metadata ecology. Dublin Core metadata standard is used to describe information resources such as publications in machine readable format.

Dublin Core Metadata Element Set (DCMES) defines 15 main elements:

1. Title
2. Creator
3. Subject
4. Description
5. Publisher
6. Contributor
7. Date
8. Type (collection, dataset, event, image, interactive resource, moving image, physical object, service, software, sound, still image, text)
9. Format
10. Identifier
11. Source
12. Language

13. Relation
14. Coverage (for example in time or by geography)
15. Right (copy rights).

Additional to these Qualified Dublin Core defines following three elements:

1. Audience
2. Provenance (history information, resource tenure)
3. RightsHolder.

Dublin Core™ is commonly used by libraries to index their collections.

4.5 Controlled vocabularies (CVs) and ISO standards

In the HIP, controlled vocabularies (CVs) and International Organization for Standardization (ISO) standards are used whenever possible. CVs are lists of predefined terms that are used for indexing and/or information retrieval. Terms are both human and machine readable.

Following Controlled Vocabularies have been used:

- NUTS (Nomenclature of territorial units for statistics, https://ec.europa.eu/eurostat/web/nuts/background) 2021 classification.

Following ISO standards have been used

- ISO-3166 for country,
- ISO-8602 for date and year, and
- ISO-639-1 for language.

4.6 Conceptual framework

In the HIP, PHIRI conceptual framework is used for different modules to provide a structured keyword (Topics). The conceptual framework is based on the work done in the Joint Action on Health Information (JA InfAct, www.inf-act.eu) and later on updated during the PHIRI to include topics on COVID-19.

Table 1. Conceptual framework

Level 1	Level 2	Level 3	Level 4	Level 5
Determinants of health	Individual characteristics and behaviours	Behaviours	Alcohol consumption	
			Food consumption (or proxy)	
			Physical activity	
			Reproductive and maternal	
			Tobacco use	
			Use of psychoactive substances	
			Isolation and quarantine	
			Attitude towards vaccination	
		Individual characteristics	Birth weight	
			Blood pressure	
			Cholesterol	

			Overweight/obesity	
	Physical and social environment	Physical environment	Housing and sanitation	
			Pollution	
		Social environment	Social network	
			Work-related	
	Socioeconomic and demographic factors	Demographic factors	NA (Demographic factors)	
		Socioeconomic factors	Education	
			Employment/occupation	
			Income/poverty	
Health status	Morbidity/disability	Accidents & injuries	Home/leisure	
			Self-injury	
			Traffic	
			Work	
		Communicable diseases	Airborne and/or vaccine-preventable diseases	
			Airborne and/or vaccine-preventable diseases	COVID-19
			Food and water borne	
			Sexually transmissible and/or blood borne	
			Zoonotic	
		Disability	NA (Disability)	
		Non-communicable diseases	Cancer	
			Cardiovascular diseases	
			Dental diseases	
			Diabetes	
			Mental diseases	
			Reproductive, maternal and newborn health	
			Respiratory diseases	
		Self-reported health status	Self-perceived health/morbidity	
	Mortality	Age- and cause-specific mortality	All causes	
			Cancer	
			External causes	
			Infectious diseases	
			Infectious diseases	COVID-19
			Non-communicable diseases (excluding cancer)	
		Life expectancies	Health expectancy	
			Life expectancy	
			Reduction of life expectancy (PYLL)	
		Maternal, perinatal and newborn mortality	Infant mortality	
			Maternal mortality	
	Wellbeing	NA (Wellbeing)	NA (Wellbeing)	
Health systems	Health resources and activities	Care utilization	Consultations	
			Diagnostic exams and tests	
			Diagnostic exams and tests	Nucleic acid or antigen test
			Diagnostic exams and tests	Seroprevalence
			Hospital utilization	
			Hospital utilization	ICU
			Long-term care	
			Reproductive, maternal and newborn health	
			Surgical procedures	

		Health employment and education	Education	
			Health workforce migration	
			Nurses and/or midwives	
			Physicians	
			Remuneration	
			Workforce other	
		Pharmaceutical sales & consumption	Generic market	
			Pharmaceutical consumption	
			Pharmaceutical consumption	Post-marketing surveillance
			Pharmaceutical sales	
		Physical and technical resources	Hospitals and beds	
			Hospitals and beds	ICU
			Medical technology	
			Other care units/beds	
	Health system performance	Access	(Un)met needs or their causes	
			Health care coverage	
			Delivery and supply chain	
		Costs/expenditure	Assets	
			Financing scheme	
			Function	
			Provider	
			Provision factors	
			Revenues	
		Quality	Autopsy	
			Cancer screening	
			Cancer survival rates	
			Care	
			Patient experience	
			Patient safety	
			Premature/avoidable mortality	
			Reproductive, maternal and newborn health	
			Vaccination coverage	
Policy	Response plan			
	Adherence/ compliance to measure			
	Interventions	Face Mask		
		Physical distancing		
		Mass gathering		
		Contact tracing		
	NA (Policy)	NA (Policy)	NA (Policy)	
Communication	Misinformation and disinformation			
Unclassified	NA (Unclassified)	NA (Unclassified)	NA (Unclassified)	

5. Notes about PHIRI metadata documentation

PHIRI aims to implement the Health Information Portal (HIP) on health and health care data for COVID-19 to support structured information exchange between EU countries. The portal follows the

FAIR (Findable, Accessible, Interoperable, and Reusable) principle by offering catalogues with overviews of COVID-19 population health data sources, studies, and capacity building exercises in EU countries in the framework of PHIRI and beyond. These metadata templates aim to facilitate identification, access to, and use of high quality and standardized COVID-19 relevant population health (health status and determinants of health) and health care (meta-)data available to the public health bodies represented in the PHIRI consortium. HIP does not store or share any individual level or aggregated data but supports secondary use of existing data by enhancing findability and accessibility of data.

To harmonize metadata and support effective search, the use of free text fields is minimized, and the template controls the information by limiting it to a set of predefined terms or categories. The information is either provided by the data owner or automatically harvested and screened by the administrator of the Health Information portal before it is published.

6. Metadata elements

6.1 Basic elements

Basic elements are those which are used in several of the HIP modules with same value alternatives. Mandatory elements for each module are marked with *.

Element	Module					
	National nodes	Research networks	HI sources	HI studies/ projects	Capacity building	Publications
Last updated	✓*	✓*	✓*	✓*	✓*	✓*
Language			✓*	✓*	✓*	✓*
Geo coverage			✓*	✓*	✓	
Country	✓*	✓*	✓*	✓*	✓	✓*
Topic		✓	✓*	✓*	✓*	✓*
Free keywords		✓	✓*	✓*	✓	✓
Funding			✓	✓*		
Target population – fixed			✓*	✓*		
Age range – lower			✓*	✓*		
Age range – upper			✓*	✓*		
Sex			✓*	✓*		

Each basic element is described below.

Element	Last updated
Description	Date when the metadata description was last updated.
DDI Lifecycle 3.2 element	
Controlled vocabulary	ISO-8601
Usage notes	This information is updated automatically in the HIP.
Element	Language
Description	The language of the project/study, data source (language of the variables), publication or in which the capacity building activity is given in.
DCAT-AP 2.1.1 element	dct:language (from class:Cataloged Resource)
DDI Lifecycle 3.2 element	ddi:DDIInstance:/s:StudyUnit/l:LogicalProduct/@xml:lang (for Health Information Sources)
Controlled vocabulary	ISO-639-1
Usage notes	
Element	Geo coverage
Description	Geographical regions which are covered by the data or in which the project/study took place or where the capacity building activity is organised in.
DCAT-AP 2.1.1 element	dct:spatial (from class:Dataset, for Health Information Sources)
DDI Lifecycle 3.2 element	ddi:DDIInstance:/s:StudyUnit/r:Coverage/r:SpatialCoverage/r:Description (for Health Information Sources)
Controlled vocabulary	Europe, Multinational, NUTS 1, NUTS 2, NUTS 3, Outside Europe.

Usage notes	
Element	Country
Description	Country in which the project/study took place, where the health information source or leading organizer of capacity building activity is registered in or country of the national node.
DCAT-AP 2.1.1 element	dct:Location
DDI Lifecycle 3.2 element	ddi:DDIInstance:/s:StudyUnit/r:Coverage/r:SpatialCoverage/r:Description/r:Content (for Health Information Sources)
Controlled vocabulary	ISO-3166
Usage notes	
Element	Topic (from conceptual framework)
Description	Topic of the project/study or Health Information Source.
DCAT-AP 2.1.1 element	dcat:theme (from class:Cataloged Resource)
DDI Lifecycle 3.2 element	ddi:DDIInstance/s:StudyUnit/r:Coverage/r:TopicalCoverage/r:Subject (for Health Information Sources)
Controlled vocabulary	Conceptual framework (see table 1 on page 12).
Usage notes	
Element	Keywords – free text
Description	Keywords that specify the content of the project/study or topic of capacity building activity.
DCAT-AP 2.1.1 element	dcat:keyword (from class:Cataloged Resource)
DDI Lifecycle 3.2 element	ddi:DDIInstance/s:StudyUnit/r:Coverage/r:TopicalCoverage/r:Keyword (for Health Information Sources)
Controlled vocabulary	-
Usage notes	Free text Keywords that are found in ontologies are added in Keyword – controlled field. Free text field is for keywords that are not found in ontologies.
Element	Funding
Description	Information about funding sources.
DDI Lifecycle 3.2 element	ddi:DDIInstance/s:StudyUnit/r:FundingInformation /r:Description (for Health Information Sources)
Controlled vocabulary	Public funding, private funding, combination of public and private funding, no funding
Usage notes	
Element	Target population – fixed
Description	The population of interest considered in the project/study or covered in health information source.
DDI Lifecycle 3.2 element	ddi:DDIInstance/s:StudyUnit:/c:ConceptualComponent/c:UniverseScheme/c:Universe/r:Description/r:Content (for Health Information Sources)
Controlled vocabulary	General population, specific groups (i.e., young, elderly, workers, migrants/minorities), patients, hospitalized, deaths
Usage notes	
Element	Age range - lower
Description	Age range of the target or studied population (starting).
DDI Lifecycle 3.2 element	
Controlled vocabulary	
Usage notes	Number
Element	Age range - upper
Description	Age range of the target or studied population (max age).
DDI Lifecycle 3.2 element	
Controlled vocabulary	-

Usage notes	Number
Element	Sex
Description	Sexes included in the HI source or studied population.
DDI Lifecycle 3.2 element	
Controlled vocabulary	Woman, Man, Both, Unknown
Usage notes	

6.2 Institutions/Organization

Elements of institutions/organizations are those reported using same format in different modules. Institutions/organization may represent institution of responsible for the activity (National Nodes, Research Networks, Projects), data owner (Health information Sources), or organizers of the capacity building activities.

Element	**Module**					
	National nodes	**Research networks**	**HI sources**	**HI studies/ projects**	**Capacity building**	**Publications**
Name	✓*	✓*	✓		✓*	
Name in English	✓	✓	✓*		✓	
Abbreviation	✓	✓	✓		✓	
URL/website	✓*	✓*	✓	✓	✓	
Country (linked to existing basic element)	✓*	✓*	✓		✓	

Element	Name
Description	Official name of the institution (e.g. data owner, coordinating institution) in national language.
DCAT-AP 2.1.1 element	dct:publisher (from class:Cataloged Resource, for Health Information Sources)
DDI Lifecycle 3.2 element	ddi:DDIInstance/g:ResourcePackage/a:OrganizationScheme/a:Organization/a:OrganizationIdentification/a:OrganizationName/r:String (for Health Information Sources)
Controlled vocabulary	
Usage notes	Existing list of institutions is used. If institution is not present in the list, user can type the name. It will be added to the list.
Element	Name in English
Description	Name of the institution/organization in English
DDI Lifecycle 3.2 element	
Controlled vocabulary	
Usage notes	Free text
Element	Abbreviation
Description	Abbreviation/acronym of the organization name
DDI Lifecycle 3.2 element	ddi:/DDIInstance/g:ResourcePackage/ a:OrganizationScheme/a:Organization/a:OrganizationIdentification/ a:OrganizationName/a:Abbreviation/r:String (for Health Information Sources)
Controlled vocabulary	
Usage notes	Free text

Element	URL / Website
Description	URL for the organization´s website.
DDI Lifecycle 3.2 element	ddi:/DDIInstance/g:ResourcePackage/a:OrganizationScheme/a:Organization/a:OrganizationIdentification/r:URN
Controlled vocabulary	
Usage notes	Web link

6.3 Persons

Elements of persons are used in different modules to describe contact persons or authors of the publications. Mandatory elements are marked with *.

Element	**Module**					
	National nodes	**Research networks**	**HI sources**	**HI studies/ projects**	**Capacity building**	**Publications**
First name	✓*	✓*				✓
Last name	✓*	✓*				✓
e-mail	✓*	✓	✓*	✓*		✓
Contact – address			✓*		✓	✓ (for some publication types)
Contact – phone number						✓ (for some publication types)
Institution (linked to the existing elements of institution above)		✓*				✓

Element	First name
Description	First name of person (contact persons for health information source, research project, for example project PI, capacity building activity). Principal investigators are the main researchers involved in producing the data
DCAT-AP 2.1.1 element	foaf:firstName?
DDI Lifecycle 3.2 element	ddi:/DDIInstance/g:ResourcePackage/a:OrganizationScheme/a:Individual/a:IndividualIdentification/a:IndividualName/a:FirstGiven (for Health Information Sources)
Controlled vocabulary	
Usage notes	Free text
Element	Last name
Description	Last name of person (contact persons for health information source or research project, for example project PI). Principal investigators are the main researchers involved in producing the data.
DCAT-AP 2.1.1 element	foaf:family_name?
DDI Lifecycle 3.2 element	ddi:/DDIInstance/g:ResourcePackage/a:OrganizationScheme/a:Individual/a:IndividualIdentification/a:IndividualName/a:LastFamily (for Health Information Sources)

Controlled vocabulary	
Usage notes	Free text
Element	E-mail
Description	E-mail address of contact person, PI or coordinating institute of HI source, research project or capacity building activity.
DDI Lifecycle 3.2 element	ddi:/DDIInstance/g:ResourcePackage/a:OrganizationScheme/a:Individual/a:ContactInformation/a:Email (for Health Information Sources)
Controlled vocabulary	-
Usage notes	Free text
Element	Contact (address)
Description	Contact details for contact person of HI source or research project (can be PI): address, city, country
DDI Lifecycle 3.2 element	ddi:/DDIInstance/g:ResourcePackage/a:OrganizationScheme/a:Individual/a:ContactInformation/a:Address (for Health Information Sources)
Controlled vocabulary	
Usage notes	Free text
Used in modules	Health Information Source, Research Project, Publication, Capacity Building Activity
Element	Contact phone
Description	Phone number of the PI or contact person of research project.
DDI Lifecycle 3.2 element	ddi:/DDIInstance/g:ResourcePackage/a:OrganizationScheme/a:Individual/a:ContactInformation/a:Telephone (for Health Information Sources)
Controlled vocabulary	-
Usage notes	Number. Provide also country code

6.4 National Node

See Section on National Nodes for the list of all elements. National Nodes includes elements from following sections: the Basic Elements, Institution/Organization, Person, Health Information Sources, Health Information Projects/Studies, and Publications. These are described under each section and not repeated here.

For type of information reported for National Nodes, there is no specific metadata standard, therefore, mapping for metadata standards is not provided for following National Node specific elements.

Element	Title
Description	Name of the national node
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	-
Usage notes	Free text
Element	National node web site
Description	
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	-
Usage notes	URL
Element	National node description
Description	Description of the national node

Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	-
Usage notes	Free text
Element	Legal framework and institutional responsibilities
Description	Short description of legal framework (list of relevant acts, regulations, etc, with links if possible), together with description of division of institutional responsibilities (e.g. which institution is responsible for communicable disease surveillance, for major health system performance indicators, etc). Include the description of centralisation or decentralisation of the HI system.
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	-
Usage notes	Free text
Element	Health information strategy
Description	Short overview of existing health information strategies and links to the documents.
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	-
Usage notes	Free text
Element	Health information infrastructure and management
Description	Short description of HI infrastructure and management - the existence of centralized database (or several databases).
DDI Lifecycle 3.2 element	
Controlled vocabulary	
Usage notes	Free text
Element	Existence of a unique patient identifier or general personal identifier
Description	
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	N/A, No, Yes
Usage notes	
Element	Name of identifier
Description	Name of the unique patient identifier or general personal identifier
Status (Mandatory/Recommended/Optional)	Mandatory when 'Yes' for previous element (Existence of a unique patient identifier or general population identifier)
Controlled vocabulary	-
Usage notes	Free text. Visible only if value "Yes" for above field was selected.
Element	Health information sources and players
Description	Short overview of major institutions managing health information (data collection, data management, dissemination, translation into policies...) and short description of their responsibilities.
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	-
Usage notes	Free text
Element	National data/privacy protection regulation and specific data access policies

Description	Short overview of national data/privacy protection regulation/legislation and short overview of data access policies (e.g. if there's necessary to get approval from national or institutional ethical committee, are there any other bodies that approve data access; or data are freely available for secondary use).
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	-
Usage notes	Free text
Element	COVID-19 policy measures applied in the country
Description	
Status (Mandatory/Recommended/Optional)	

Controlled vocabulary	List of alternatives with Yes/No/Other + specify free text
	• Lockdown
	  ○ National lockdown
	  ○ Regional lockdown
	• Travel/mobility
	  ○ Recommendation to avoid non-essential travel (internal and/or external)
	  ○ Airport health check
	  ○ Airport restriction
	  ○ Boarder health check
	  ○ Boarder restriction
	  ○ Curfew (e.g. individual movement restriction)
	  ○ Domestic movement restrictions
	  ○ Gathering restrictions
	  ○ Measures for public transport
	  ○ Port and ship restriction
	• Educational system
	  ○ Restrictions for pre-schools and childcare facilities
	  ○ Restrictions for primary schools (up to 10 years)
	  ○ Restrictions for secondary schools (10 years and older)
	  ○ Restrictions for universities/ higher education
	• Test, trace, isolate
	  ○ Quarantine of contact persons: mandatory by law
	  ○ Active contact tracing
	  ○ Availability of isolation and quarantine facilities
	  ○ Enhance laboratory testing capacity
	  ○ Isolation of infected persons: mandatory by law
	  ○ Isolation of infected persons: recommended
	  ○ National testing strategy
	  ○ Public testing facilities (e.g. drive-in testing)
	  ○ Quarantine of contact persons: recommended
	  ○ Restricted testing

	• Personal protective measures
	  ○ Face masks mandatory in stores
	  ○ Hygiene recommendations
	  ○ Social distancing recommendations
	  ○ Face masks mandatory in public transport
	  ○ Face masks mandatory in certain public outdoor spaces
	  ○ Face masks mandatory in certain public indoor spaces
	• Healthcare and public health capacity
	  ○ Increase in medical supplies and equipment
	  ○ Adapt procedure for patient management
	  ○ Assistance to/protection of vulnerable populations
	  ○ Crisis management plan
	  ○ Increase availability of PPE
	  ○ Increase healthcare workforce
	  ○ Increase hospital capacity
	  ○ Measures to ensure security of supply
	  ○ Repurpose hospitals (e.g. conversion of sections or institutions for treatment of COVID-19 patents)
	• Other
	  ○ Environment cleaning and disinfection
	  ○ Public awareness measures/campaigns
	  ○ Restrictions for non-essential businesses
	  ○ Vaccination strategy
	  ○ Work safety recommendations

6.5 European Research Networks

See Section on Research Networks for the list of all elements. Research Networks includes elements from following sections: the Basic Elements, Institution/Organization, Person, Health Information Sources, Health Information Projects/Studies, Capacity building activities and Publications. These are described under each section and not repeated here.

For type of information reported for European Research Networks, there is no specific metadata standard, therefore, mapping for metadata standards is not provided for following Research Network specific elements.

Element	Is the research network active
Description	
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	Yes, No
Usage notes	
Element	Reason
Description	Description why the research network is no longer active.
Status (Mandatory/Recommended/Optional)	Mandatory if value above is “No”
Controlled vocabulary	
Usage notes	Text field

Element	Start date
Description	The date when the research network was established.
Status (Mandatory/Recommended/Optional)	
Controlled vocabulary	ISO-8602
Usage notes	
Element	Name of research network
Description	
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	
Usage notes	Free text
Element	Acronym
Description	Acronym of the research network
Status (Mandatory/Recommended/Optional)	
Controlled vocabulary	
Usage notes	Free text
Element	Network website
Description	
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	
Usage notes	URL
Element	Aim of the research network
Description	Description of the aim(s) of the research network
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	
Usage notes	Free text
Element	EU regulation
Description	EU regulation relevant for the activities of the research network
Status (Mandatory/Recommended/Optional)	
Controlled vocabulary	
Usage notes	Free text
Element	GDPR/national binding regulations
Description	GDPR and/or other national binding regulations relevant for the activities of the research network
Status (Mandatory/Recommended/Optional)	
Controlled vocabulary	
Usage notes	Free text
Element	Legal status of network
Description	Description of the legal status of the network
Status (Mandatory/Recommended/Optional)	
Controlled vocabulary	
Usage notes	Free text
Element	Participating institutions
Description	
Status (Mandatory/Recommended/Optional)	Mandatory

Controlled vocabulary	None; one representative from each country; several representatives from each country; Other describe
Usage notes	
Element	Organization of participation
Description	
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	None; One representative from each country; Several representatives from each country; Other, describe
Usage notes	
Element	Organization of participation - other
Description	
Status (Mandatory/Recommended/Optional)	Mandatory if value “Other, describe” is selected
Controlled vocabulary	
Usage notes	Free text
Element	How is the data gathered from the partners?
Description	
Status (Mandatory/Recommended/Optional)	Recommended
Controlled vocabulary	Partners fill out pre-prepared Excel sheets, Partners send data in a certain format (e.g. CSV, xml), Other, describe
Usage notes	
Element	How often do you collect data from partners?
Description	
Status (Mandatory/Recommended/Optional)	Recommended
Controlled vocabulary	Annually, Daily, Every 2 years, Every 3 years, Every 4 years, Every 5 years, Irregularly, Monthly, One time collection, Quarterly, Weekly, Other, describe
Usage notes	
Element	How is the data transferred from partners to RN?
Description	
Status (Mandatory/Recommended/Optional)	Recommended
Controlled vocabulary	Not applicable, Via mail, Via upload on secure system, Other, describe
Usage notes	
Element	How do you ensure data security for data transfer?
Description	
Status (Mandatory/Recommended/Optional)	Recommended
Controlled vocabulary	Digital certification, data encryption, Other, describe
Usage notes	
Element	How do you ensure data security for data access?
Description	
Status (Mandatory/Recommended/Optional)	Recommended
Controlled vocabulary	Digital certification, data encryption, Other, describe
Usage notes	
Element	Is the data collected relevant to COVID-19?
Description	
Status (Mandatory/Recommended/Optional)	Recommended
Controlled vocabulary	No, Yes

Usage notes	
Element	Describe the frequency, scope, ...
Description	
Status (Mandatory/Recommended/Optional)	Recommended
Controlled vocabulary	
Usage notes	Free text
Element	Is the analysis relevant to COVID-19?
Description	
Status (Mandatory/Recommended/Optional)	Recommended
Controlled vocabulary	No, Yes
Usage notes	
Element	Description of the activities (analysis relevant forCOVID-19)
Description	Please describe your activities
Status (Mandatory/Recommended/Optional)	Recommended
Controlled vocabulary	
Usage notes	Free text
Element	Is the capacity building relevant to COVID-19?
Description	
Status (Mandatory/Recommended/Optional)	Recommended
Controlled vocabulary	No, Yes
Usage notes	
Element	Activities related to capacity building free text (COVID-19)
Description	Please describe your activities
Status (Mandatory/Recommended/Optional)	Recommended
Controlled vocabulary	
Usage notes	Free text
Element	Is there interaction with policy makers/knowledge translation relevant to COVID-19?
Description	
Status (Mandatory/Recommended/Optional)	Recommended
Controlled vocabulary	No, Yes
Usage notes	
Element	Activities related to interaction free text (COVID-19)
Description	Please describe your activities
Status (Mandatory/Recommended/Optional)	Recommended
Controlled vocabulary	
Usage notes	Free text
Element	Are there any topics covered by the research network, but that could not be reported in the previous sections?
Description	
Status (Mandatory/Recommended/Optional)	
Controlled vocabulary	
Usage notes	Free text
Element	Link to the forum or discussion platform
Description	If a forum or discussion platform is dedicated to the research network, please enter link here.

Status (Mandatory/Recommended/Optional)	
Controlled vocabulary	
Usage notes	URL

6.6 Health Information Sources

See Section on Health Information Sources for the list of all elements. Health Information Sources includes elements from following sections: the Basic Elements, Institution/Organization, and Person. These are described under each section and not repeated here.

Element	Title
Description	Full authoritative title of the HI source. List any additional titles for this item as Alternative Title.
Status (Mandatory/Recommended/ Optional)	Mandatory
DCAT-AP 2.1.1 element	dct:title (from class:Cataloged Resource)
DDI Lifecycle 3.2 element	ddi:DDIInstance/s:StudyUnit/r:Citation/r:Title/r:String
Controlled vocabulary	
Usage notes	Free text
Element	Alternative title
Description	An alternative title by which the HI source is commonly referred.
Status (Mandatory/Recommended/ Optional)	Optional
DDI Lifecycle 3.2 element	ddi:DDIInstance/s:StudyUnit/r:Citation/r:AlternateTitle/r:String
Controlled vocabulary	
Usage notes	Free text
Element	Acronym
Description	An abbreviation for the title by which the HI source is commonly referred.
Status (Mandatory/Recommended/ Optional)	Optional
DDI Lifecycle 3.2 element	ddi:DDIInstance/s:StudyUnit/r:Citation/r:AlternateTitle/r:String
Controlled vocabulary	
Usage notes	Free text
Element	Type of information
Description	Type of Health Information source.
Status (Mandatory/Recommended/ Optional)	Mandatory
DDI Lifecycle 3.2 element	ddi:DDIInstance/s:StudyUnit/dc:DataCollection/dc:CollectionEvent /dc:DataSource/dc:DataSourceType/dc:SourceType
Controlled vocabulary	Survey/interview data, Administrative data, Population data, Registry data, Biobank/sample/specimen data, Customer record data, Observational study data, Data from other records.
Usage notes	
Element	URL of the data source
Description	A reference to a web resource that specifies the location of HI description.

Status (Mandatory/Recommended/ Optional)	Mandatory
DCAT-AP 2.1.1 element	dcat:landingPage (from class:Cataloged Resource)??
DDI Lifecycle 3.2 element	ddi:DDIInstance/s:StudyUnit/r:OtherMaterial/r:URN
Controlled vocabulary	
Usage notes	URL of the HI source
Element	Description
Description	Description: e.g. the purpose, nature, and scope of the data collection, special characteristics, major subject areas and topics covered.
Status (Mandatory/Recommended/ Optional)	Recommended
DCAT-AP 2.1.1 element	dct:description (from class:Cataloged Resource)
DDI Lifecycle 3.2 element	ddi:DDIInstance/s:StudyUnit/r:Abstract/r:Content
Controlled vocabulary	
Usage notes	Free text
Element	Governance and Legal Framework
Description	Description of the governance and legal framework in which the HI exists.
Status (Mandatory/Recommended/ Optional)	Recommended
DDI Lifecycle 3.2 element	
Controlled vocabulary	
Usage notes	Free text
Element	Number of observations
Description	Number of observations in the data source
Status (Mandatory/Recommended/ Optional)	Optional
DDI Lifecycle 3.2 element	ddi:DDIInstance/s:StudyUnit/dc:DataCollection/dc:ProcessingEventScheme/dc:ProcessingEvent/dc:dataAppraisalInformation/dc:ResponseRate/dc:SampleSize
Controlled vocabulary	
User notes	Number
Element	Data collection period – starting date
Description	Years in which data was collected (starting date).
Status (Mandatory/Recommended/ Optional)	Optional
DCAT-AP 2.1.1 element	dct:temporal (from class:Dataset)
DDI Lifecycle 3.2 element	ddi:DDIInstance/s:StudyUnit/dc:DataCollection/dc:CollectionEvent/dc:DataCollectionDate/r:StartDate
Controlled vocabulary	ISO 8601
Usage notes	
Element	Data collection period – end date
Description	Years in which data was collected (ending date).
Status (Mandatory/Recommended/ Optional)	Optional
DCAT-AP 2.1.1 element	dct:temporal (from class:Dataset)
DDI Lifecycle 3.2 element	ddi:DDIInstance/s:StudyUnit/dc:DataCollection/dc:CollectionEvent/dc:DataCollectionDate/r:EndDate
Controlled vocabulary	ISO 8601

Usage notes	
Element	Updating periodicity
Description	
Status (Mandatory/Recommended/ Optional)	Recommended
DCAT-AP 2.1.1 element	dct:accrualPeriodicity (from class:Dataset)
DDI Lifecycle 3.2 element	ddi:/DDIInstance/s:StudyUnit/dc:DataCollection/dc:CollectionEvent/dc:DataCollectionFrequency/dc:IntendedFrequency
Controlled vocabulary	None; Annually; Daily; Every 2 years; Every 3 years; Every 4 years; Every 5 years; Irregularly; Monthly; One time collection; Quarterly; Weekly
Usage notes	
Element	Personal identifier
Description	
Status (Mandatory/Recommended/ Optional)	Mandatory
DDI Lifecycle 3.2 element	
Controlled vocabulary	National identifier, patient identifier, participant number, other
Usage notes	
Element	Level of aggregation
Description	Individual level data or aggregated.
Status (Mandatory/Recommended/ Optional)	Mandatory
DDI Lifecycle 3.2 element	
Controlled vocabulary	Individual, Aggregated
Usage notes	
Element	Linkage possible
Description	Linkage with other national data sources is possible.
Status (Mandatory/Recommended/ Optional)	Optional
DDI Lifecycle 3.2 element	
Controlled vocabulary	Yes, No
Usage notes	
Element	Permanent identifier
Description	Permanent or persistent identifier of the data source, such as PID, DOI, etc.
Status (Mandatory/Recommended/ Optional)	Mandatory
DCAT-AP 2.1.1 element	dct:identifier (from class:Cataloged Resource)
DDI Lifecycle 3.2 element	ddi:DDIInstance/s:StudyUnit/r:Citation/r:InternationalIdentifier/r:IdentifierContent
Controlled vocabulary	
Usage notes	Free text
Element	Terms of data access URL
Description	A reference to a web resource that specifies the terms of data access.
Status (Mandatory/Recommended/ Optional)	Recommended
DDI Lifecycle 3.2 element	
Controlled vocabulary	

Usage notes	URL
Element	Terms of data access
Description	Description of who can get access to the data, how the access rights are provided, and where and how the access rights should be requested.
Status (Mandatory/Recommended/ Optional)	Recommended
DCAT-AP 2.1.1 element	dct:accessRights (from class:Cataloged Resource)
DDI Lifecycle 3.2 element	ddi:DDIInstance/s:StudyUnit/a:Archive/a:ArchiveSpecific/a:Item/a:Access/r:AccessConditions/
Controlled vocabulary	
Usage notes	Free text
Element	Regulations for data sharing
Description	Regulations in place regarding sharing of data from this HI source.
Status (Mandatory/Recommended/ Optional)	Recommended
DDI Lifecycle 3.2 element	
Controlled vocabulary	
Usage notes	Free text

6.7 Health Information Studies / Research Projects

See Section on Health Information Studies/Research Projects for the list of all elements. Health Information Studies / Research Projects includes elements from following sections: the Basic Elements, Institution/Organization, and Person. These are described under each section and not repeated here.

For type of information reported for Health Information Studies/Research Project, there is no specific metadata standard, therefore, mapping for metadata standards is not provided for following Health Information Studies/Research Projects specific elements.

Element	Title
Description	The title of the project/study.
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	-
Usage notes	Free text.
Element	Alternative title
Description	Alternative title of the project/study.
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	-
Usage notes	Free text
Element	Acronym
Description	Abbreviation of the title.
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	-
Usage notes	Free text
Element	Study design
Description	The set of methods and procedures used to collect and analyze data.

Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	Observational, experimental
Usage notes	
Element	Type of used information/type of used data sources
Description	Data sources used in the project/study.
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	HIS, HES, cohort study, registers, administrative health data (HDR-hospital discharge records, mortality), health facilities data, biobank/sample/specimen data, consumer record data, insurance health data, socio-economic data, environmental data
Usage notes	
Element	URL of the project/study
Description	A reference to a web resource that specifies the location of the project/study.
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	-
Usage notes	web link of the project/study
Element	Description
Description	Brief description of the project/study, including the purpose, nature, and scope of the data collection, characteristics of its contents, major subject areas covered, etc.
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	-
Usage notes	Free text
Element	Project/study duration
Description	Duration of the project/study.
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	ISO-8601
Usage notes	Start date and end date
Element	Target population – free
Description	The population of interest considered in the project/study.
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	-
Usage notes	Free text
Element	Record-Linkage used
Description	Records from different data sources describing the same entity are joint together.
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	Yes, No, Only to some
Usage notes	
Element	Number of observations
Description	Number of persons included in the study.
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	-
Usage notes	Number

6.8 Capacity Building Activities

See Section on Capacity Building Activities for the list of all elements. Capacity Building Activities includes elements from following sections: the Basic Elements, Institution/Organization, and Person. These are described under each section and not repeated here.

For type of information reported for Capacity Building Activities, there is no specific metadata standard, therefore, mapping for metadata standards is not provided for following Capacity Building Activities specific elements.

Element	Title
Description	Capacity Building Activity official name as referred on the source portal.
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	-
Usage notes	Free text
Element	Acronym
Description	The acronym for the Capacity Building Activity.
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	-
Usage notes	Free text
Element	Activity description
Description	Summary of the topic, target, objectives and lecturer of the activity.
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	-
Usage notes	Free text
Element	COVID-19 Related Activity
Description	Indicate if there is a relationship between the Capacity Building Activity objectives and the Covid-19 pandemic.
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	-
Usage notes	No text, just selection of a "box" if there is a relationship.
Element	PHIRI Related Activity
Description	Indicate if the Capacity Building Activity is a PHIRI initiative or is under the responsibility of another project or organisation.
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	
Usage notes	No text, just selection of a "box" if it is a PHIRI initiative. In portal: True, False
Element	Associated research networks and national nodes
Description	Links to the activities of the associated research network and national node.
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	
Usage notes	Select from the list of research networks or national nodes
Element	URL of the Activity

Description	Web address of the activity.
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	Hyperlink
Usage notes	URL
Element	Type of setting
Description	Describes the method or way used to practically organize or develop the activity and allows to make distinction based on this specific characteristic.
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	Online, Classroom based, Blended
Usage notes	Selection of one of the choices
Element	Category of capacity building activity
Description	Classifies and associates the activities by specific characteristics like the nature, form or length of the activity.
Status (Mandatory/Recommended/Optional)	Mandatory
Controlled vocabulary	Asynchronous Training, Case discussions/visits, Conference, Course, Drills, e-Learning, Educational Resources Repositories, European School on Health Information, Fellowship Programme, MOOC/Massive Open Online Course, Multi-day Course, One-day Course, One-week Course, Podcast/Communication, Seminar/Webinar, Symposium, Table-Top Exercises, Team Building, Workshop
Usage notes	Selection of one of the choices
Element	Activity Schedule
Description	Indicates if the activity is dedicated to repeat itself in a regular pattern or occurrence.
Status (Mandatory/Recommended/Optional)	
Controlled vocabulary	Permanent, Monthly Schedule, Fixed Date(s)
Usage notes	Selection of one of the choices
Element	Activity Starting Date
Description	Indicates the start date and time of the Capacity Building Activity.
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	ISO-8602
Usage notes	
Element	Activity Ending Date
Description	Indicates the end date and time of the Capacity Building Activity.
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	ISO-8602
Usage notes	
Element	Venue/Location URL
Description	Capacity Building Activity's detailed information about the website of the place where the activity happens/ will take place.
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	Hyperlink

Usage notes	-
Element	Target Audience
Description	Target categories of participants to the activity.
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	Students, Junior specialists, Experts, Public Health Sector, Public Health Professionals, Public Health Students, Health Professionals, Public Health Authorities, Decision-Makers, Policy-Makers, Communication Professionals, General public, Not available, No specific target.
Usage notes	Selection of multiple terms.
Element	Available in other languages
Description	Check if training is available in several languages
Status (Mandatory/Recommended/Optional)	Optional
Controlled vocabulary	
Usage notes	

6.9 Publications

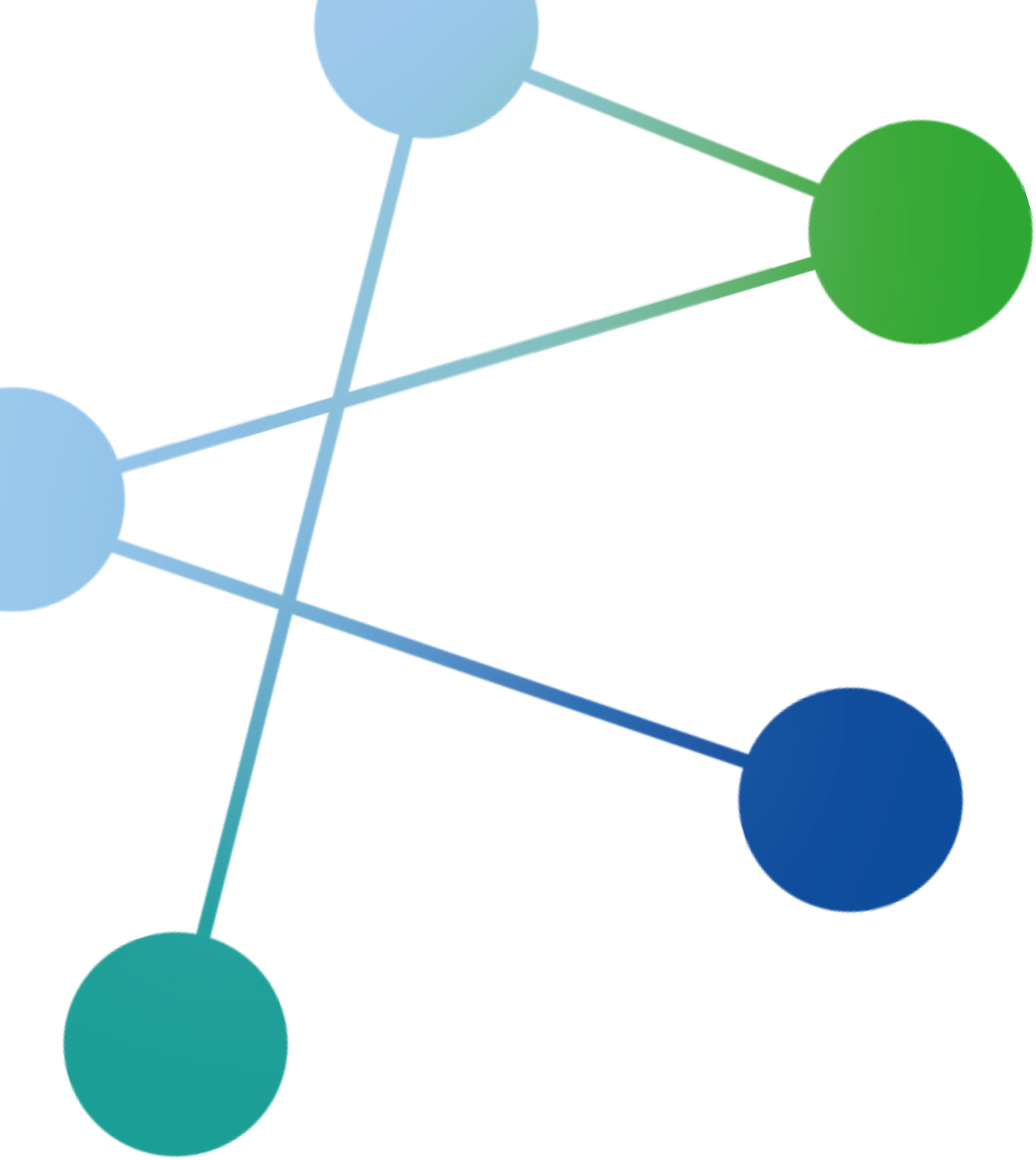
See Section on Publications for the list of all elements. Publications includes elements from following sections: the Basic Elements, Institution/Organization, and Person. These are described under each section and not repeated here. Mandatory elements for each publication type are marked with *.

Element	Country report	Fact sheet or leaflet	Guideline	Infographics	Legislation or regulation	Newsletter	Scientific peer-reviewed publication	Policy brief	Portal or website	Presentation	Report	Video presentation	Other document
Title	✓*	✓*	✓	✓	✓	✓	✓*	✓	✓	✓	✓*	✓	✓
Alternative title	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Abstract	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Language (from Basic elements)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Free keywords (from Basic elements)	✓*	✓	✓	✓	✓	✓	✓*	✓	✓*	✓*	✓*	✓*	✓
Topic (from Basic elements)	✓*	✓*	✓	✓		✓	✓	✓	✓*	✓*	✓*	✓*	✓
Sponsor	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Supporting document(s)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Author(s)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Journal					✓		✓						
Report series	✓										✓		

Publisher	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Volume	✓		✓		✓	✓	✓				✓		✓
Issue	✓		✓		✓	✓	✓				✓		✓
Pages	✓				✓		✓				✓		✓
Site owner									✓				
DOI	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
URN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
ISSN	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓
URL for publication	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Access rights to the publication	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Country (from Basic elements)	✓*	✓*	✓*	✓*	✓*	✓*	✓*	✓*	✓*	✓*	✓*	✓*	✓*
GEO coverage (from Basic elements)	✓*	✓*	✓*	✓*	✓*	✓*	✓*	✓*	✓*	✓*	✓*	✓*	✓*
Corresponding author (based on Persons)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Contact info – address	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Contact phone	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Contact e-mail	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
URL of the contact person or his/her institution	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year of publication	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Element	Title
Description	The title (name) of the publication.
Dublin Core element	http://purl.org/dc/elements/1.1/title
Controlled vocabulary	
Usage notes	Free text
Element	Alternative title
Description	Alternative title (name) of the publication.
Dublin Core element	http://purl.org/dc/terms/alternative
Controlled vocabulary	
Usage notes	Free text
Element	Description/Abstract
Description	
Dublin Core element	http://purl.org/dc/elements/1.1/description
Controlled vocabulary	
Usage notes	Free text
Element	Sponsor
Description	
Dublin Core element	
Controlled vocabulary	Institution, Research Network, Research Infrastructure, International Organization
Usage notes	
Element	Type of publication

Description	
Dublin Core element	http://purl.org/dc/elements/1.1/type
Controlled vocabulary	Scientific peer-reviewed publication, Report, Country report, Policy brief, Fact sheet of leaflet, Newsletter, Guideline, Portal or website, Presentation, Infographics, Video presentation, Legislation or regulation, Other document
Usage notes	
Element	Journal
Description	Name of the journal
Dublin Core element	
Controlled vocabulary	
Usage notes	
Element	Report series
Description	Name of the report series
Dublin Core element	
Controlled vocabulary	
Usage notes	
Element	Publisher
Description	Name of the publisher
Dublin Core element	http://purl.org/dc/terms/publisher
Controlled vocabulary	
Usage notes	
Element	Publication year
Description	Year of publication
Dublin Core element	
Controlled vocabulary	
Usage notes	
Element	DOI
Description	DOI if available
Dublin Core element	http://purl.org/dc/elements/1.1/identifier
Controlled vocabulary	
Usage notes	
Element	URL of the publication
Description	URL if DOI not available
Dublin Core element	
Controlled vocabulary	
Usage notes	URL
Element	Publication date
Description	
Dublin Core element	
Controlled vocabulary	
Usage notes	
Element	Access rights to the publication
Description	
Dublin Core element	http://purl.org/dc/terms/RightsStatement
Controlled vocabulary	Open access, closed access
Usage notes	



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