



# AGID

Agenzia per l'Italia Digitale

# FormezPA

## FORMAZIONE AGID – FORMEZ SULLA TRANSIZIONE DIGITALE DELLA PA

**Progetto Informazione e formazione per la transizione digitale della PA  
nell'ambito del progetto «Italia Login – la casa del cittadino»**

(A valere sul PON Governance e Capacità Istituzionale 2014-2020)





# Metodologia e strumenti (Validatore, Geoportale) del monitoraggio INSPIRE

**Marco Minghini**

*Webinar – October 22, 2021*

Joint  
Research  
Centre



# INSPIRE Monitoring and Reporting 2021

- Based on [Commission Decision 2019/1372](#):
  - 19 indicators calculated from the metadata of spatial data sets & spatial data services published by Member States through discovery services

## DECISIONS

COMMISSION IMPLEMENTING DECISION (EU) 2019/1372

of 19 August 2019

implementing Directive 2007/2/EC of the European Parliament and of the Council as regards monitoring and reporting

*(notified under document C(2019) 6026)*


(Text with EEA relevance)

[https://eur-lex.europa.eu/eli/dec\\_impl/2019/1372/oj](https://eur-lex.europa.eu/eli/dec_impl/2019/1372/oj)

# Indicators for Monitoring and Reporting 2020

- Same set of indicators, **one important difference** in the calculation:
  - only MD encoded according to **TG 2.0** will be considered!

MD TG 1.3



INSPIRE  
Infrastructure for Spatial Information in Europe

**INSPIRE Metadata Implementing Rules: Technical Guidelines based on EN ISO 19115 and EN ISO 19119**

Title	INSPIRE Metadata Implementing Rules: Technical Guidelines based on EN ISO 19115 and EN ISO 19119
Creator	Drafting Team Meeting and European Commission Joint Research Centre
Creation date	2007-10-26
Date of last revision	2013-10-29
Subject	INSPIRE Implementing Rules for Metadata
Status	V. 1.3
Publisher	European Commission Joint Research Centre
Type	Text
Description	Guidelines based on EN ISO 19115 and EN ISO 19119 for Commission regulation (EC) No 1205/2008 of 3 December 2008 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards metadata
Contributor	See Acknowledgements
Format	Pdf
Source	European Commission Joint Research Centre
Rights	Public
Identifier	MD_IR_and_ISO_20131029.doc
Language	EN
Relation	Not applicable
Coverage	Not applicable




INSPIRE  
Infrastructure for Spatial Information in Europe

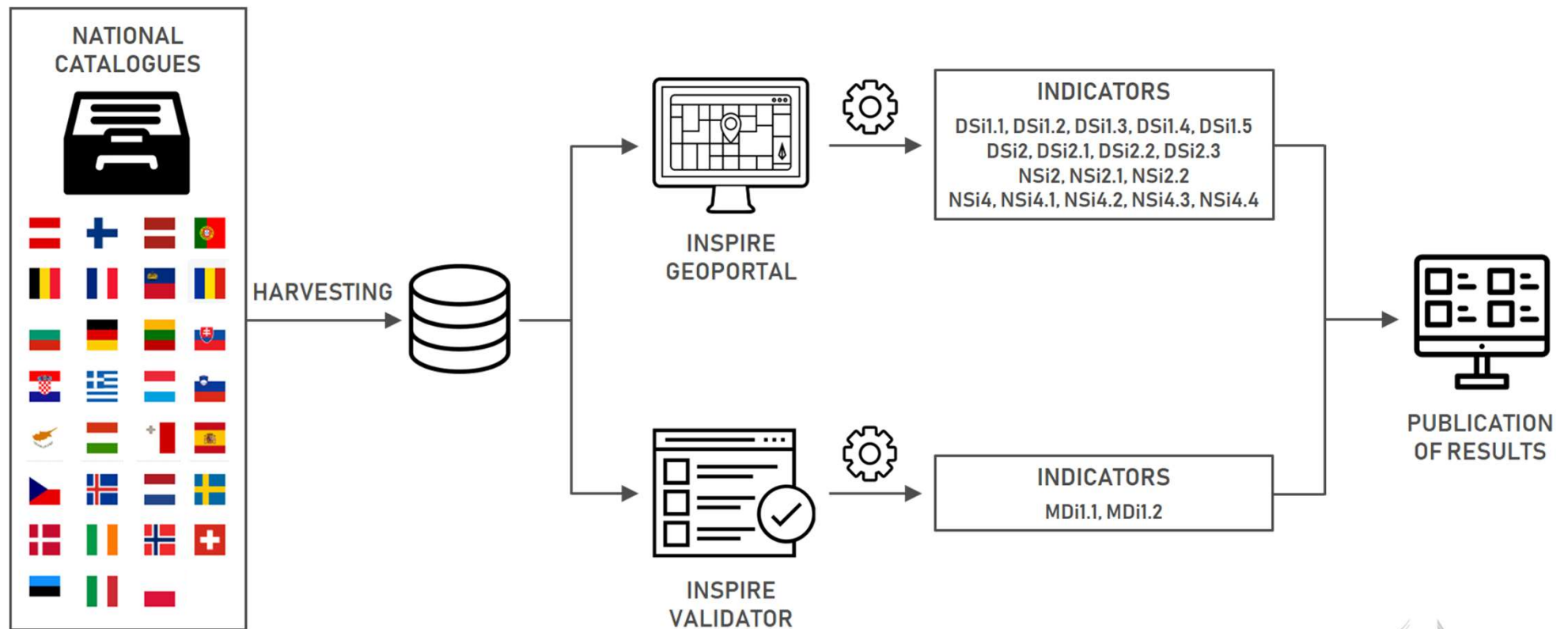
MD TG 2.0

**Technical Guidance for the implementation of INSPIRE dataset and service metadata based on ISO/TS 19139:2007**

Title	Technical Guidelines for implementing dataset and service metadata based on ISO/TS 19139:2007
Creator	Temporary MIG subgroup for action MWP-8
Date of publication	2017-03-02
Subject	Technical Guidance for INSPIRE metadata for datasets and services
Status	Version 2.0.1
	This document has been endorsed by the INSPIRE maintenance and implementation group (MIG) in its meeting on 30/11-1/12/2016 (see meeting minutes at <a href="https://ies-svn.jrc.ec.europa.eu/projects/mig-p/wiki/5th_MIG_P_meeting">https://ies-svn.jrc.ec.europa.eu/projects/mig-p/wiki/5th_MIG_P_meeting</a> ).
Publisher	INSPIRE Maintenance and Implementation Group (MIG)
Type	Text
Description	Implementation specification for defining metadata for INSPIRE datasets and services in ISO/TS 19139 based XML format in compliance with the INSPIRE Implementing Rules for metadata.
Format	PDF
Licence	Creative Commons Attribution (cc-by) 4.0 ( <a href="https://creativecommons.org/licenses/by/4.0/">https://creativecommons.org/licenses/by/4.0/</a> )
Identifier	<a href="http://inspire.ec.europa.eu/id/document/tg/metadata-iso19139/2.0">http://inspire.ec.europa.eu/id/document/tg/metadata-iso19139/2.0</a> (latest bugfix version of v2.0)
	<a href="http://inspire.ec.europa.eu/id/document/tg/metadata-iso19139/2.0.1">http://inspire.ec.europa.eu/id/document/tg/metadata-iso19139/2.0.1</a> (this bugfix version)
Corrigenda	<a href="http://inspire.ec.europa.eu/id/document/tg/metadata-iso19139/2.0/corrigenda">http://inspire.ec.europa.eu/id/document/tg/metadata-iso19139/2.0/corrigenda</a>
Language	EN

# Monitoring and Reporting 2021 – Process

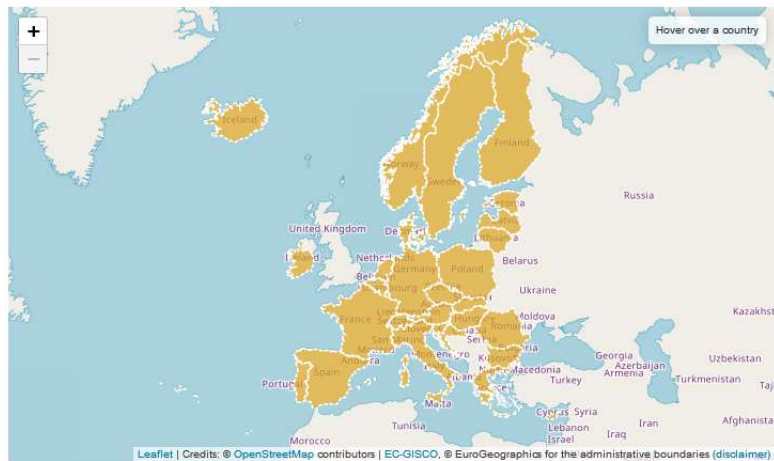
- Overall process:



# INSPIRE Monitoring and Reporting 2021

- INSPIRE Geoportal

INSPIRE Data Sets - EU & EFTA Country overview



**INSPIRE Geoportal Data Set Statistics**

91433

Metadata records

44828

Downloadable Data Sets

46442

Viewable Data Sets

Spatial scope coverage:  National  Regional

Select a COUNTRY

Austria	630   449   492	Finland	597   88   238	Latvia	166   100   99	Portugal	622   350   496
Belgium	577   377   488	France	218   75   17	Liechtenstein	69   10   12	Romania	103   35   38
Bulgaria	263   97   99	Germany	65393   41149   42184	Lithuania	132   126   59	Slovakia	345   83   96
Croatia	146   10   22	Greece	59   59   59	Luxembourg	304   283   243	Slovenia	91   12   32
Cyprus	42   32   34	Hungary	121   23   20	Malta	150   149   150	Spain	246   75   164
Czech Republic	165   60   87	Iceland	147   7   0	Netherlands	220   126   146	Sweden	245   189   217
Denmark	207   113   99	Ireland	76   0   0	Norway	161   71   28	Switzerland	218   2   4
Estonia	87   41   54	Italy	19470   528   668	Poland	163   109   97		

<https://inspire-geoportal.ec.europa.eu>

- INSPIRE Reference Validator

<https://inspire.ec.europa.eu/validator>



# INSPIRE Geoportal

- Central point of access to all data shared under INSPIRE:
  - harvests national catalogues (does not store any data)
  - allows to search, view and download datasets
  - available filters:
    - priority datasets for environmental reporting
    - INSPIRE data themes

<https://inspire-geoportal.ec.europa.eu>



The screenshot shows the INSPIRE Geoportal website. At the top right, there are links for "About | Contact | Privacy policy | Legal notice | Cookies". The main header features the European Commission logo and the text "INSPIRE GEOPORTAL" and "Enhancing access to European spatial data". Below the header, there is a navigation bar with "European Commission > INSPIRE > Geoportal" and a menu with "Home", "Priority Data Sets Viewer", "Thematic Viewer", "Harvesting status", and "Find out more about".

### Welcome to the INSPIRE Geoportal

The INSPIRE Geoportal is the central European access point to the data provided by EU Member States and several EFTA countries under the INSPIRE Directive. The Geoportal allows:

- monitoring the availability of INSPIRE data sets;
- discovering suitable data sets based on their descriptions (metadata);
- accessing the selected data sets through their view or download services.

The metadata used in the Geoportal are regularly harvested from the discovery services of EU Member States and EFTA countries. The status of harvesting is available [here](#).

Feedback regarding the functionality as well as data set availability is welcome [here](#).

#### Priority Data Sets Viewer



The application displays the availability and provides access to the selected priority data sets used for environmental reporting. It allows filtering by environmental domain, environmental legislation and country, as well as individual priority data sets.

[Browse Priority Data Sets](#)

#### INSPIRE Thematic Viewer



The application displays the availability and provides access to all EU MS data sets falling under the scope of INSPIRE Directive filtered by data themes and countries (i.e. Annex I, II and III).

[Browse INSPIRE Thematic Data Sets](#)

# INSPIRE Geoportal – Ongoing developments

- Re-engineered **backend** based on GeoNetwork:
  - aligned with GeoNetwork's plan to move to **micro-services**
  - main focus is on the **harvesting module**
  - direct contribution to the main branch (no forks) to ensure **sustainability**
  - **containerisation & cloud** hosting
- New **frontend** to include an additional filtering option:
  - by **high-value datasets** – as specified in the upcoming Implementing Act following the 2019 Open Data Directive





# INSPIRE Reference Validator

- Reasons to develop a common validator:
  - help Member States data providers **test resources** (metadata, data sets and network services) against INSPIRE requirements
  - help INSPIRE coordinators (DG ENV, JRC & EEA) and national coordinators **check INSPIRE implementation progress** in Member States & across Europe
    - support INSPIRE Monitoring and Reporting
  - help solution providers **check their software solutions** against INSPIRE requirements



# INSPIRE Reference Validator – Releases

## Annual releases

As mentioned above, several releases of the INSPIRE Reference Validator are scheduled each year with the main goal of concentrating breaking changes in the first half of the year in order to produce the major release used for the end-of-year Monitoring process already in June. The scheduled annual releases are described in detail in the next sub-sections. In addition to the different infrastructure and deployment environments, the different releases are managed using different branches of the *ets-repository* repository.

For simplicity, the descriptions make explicit reference to releases in the years 2021/2022, but the same release schedule will be applied consistently over the following years:

- v2021.1 - 15/03/2021: it includes both breaking and non-breaking changes.
- v2021.2 - 15/06/2021: it includes both breaking and non-breaking changes.
- v2022.b - 15/06/2021: it includes both breaking and non-breaking changes which are planned to become effective (for Monitoring purposes) in the following year. **used for Monitoring and Reporting 2021**
- v2021.3 - 15/09/2021: it only includes non-breaking changes, so that any INSPIRE resource passing the test in the previous release automatically passes the same test in this release. This release is the one used for the end-of-year Monitoring process.
- v2022.0 - 15/01/2022: it includes both breaking and non-breaking changes, including those available in the beta instance of the previous year.

<https://github.com/INSPIRE-MIF/helpdesk-validator/tree/master/release%20strategy>

# INSPIRE Reference Validator – v.2021.3

v2021.3

f0eda89

Verified

Compare

v2021.3 16/09/2021

The version published at this time contains only non-breaking changes.

## New Features

ATS:

- [ATS for Data Specification on Mineral Resources](#)
- [ATS for Data Specification on Energy Resources](#)
- [ATS for Data Specification on Oceanographic geographical features](#)
- [ATS for Data Specification on Atmospheric Conditions and Meteorological Geographical Features](#)
- [ATS for Data Specification on Statistical Units](#)
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- [ETS for Data Specification on Soil](#)

## Bugfixes

- [#440 Fixed prefixes on lu-gml - #647](#)
- [#458 Polygon, PolyhedralSurface and TriangulatedSurface added to bu-as b.5 and lc-v-as a.1 - #633](#)
- [#473 Added certificates in validation process - #648](#)
- [#526 hb-as.a.4 paths fixed - #649](#)
- [#532 Parsed 'lang' to String to avoid type error - #650](#)
- [#555 ef-as a.1 conditions fixed for empty observations - #651](#)
- [#566 Fixed "An error has occurred" error on new UI.](#)
- [#571 Fixed SwaggerUI documentation.](#)
- [#572 Added missing ';' to media-type test & Update URL to point against atom URL - #653](#)
- [#576 Added missing semicolons to WFS - #652](#)
- [#582 Added missing '.Default' layers - #654](#)
- [#587 Updated wrong variable - #655](#)
- [#601 noDateTypeForSpecification message typo fixed - #657](#)

## Deployment instructions

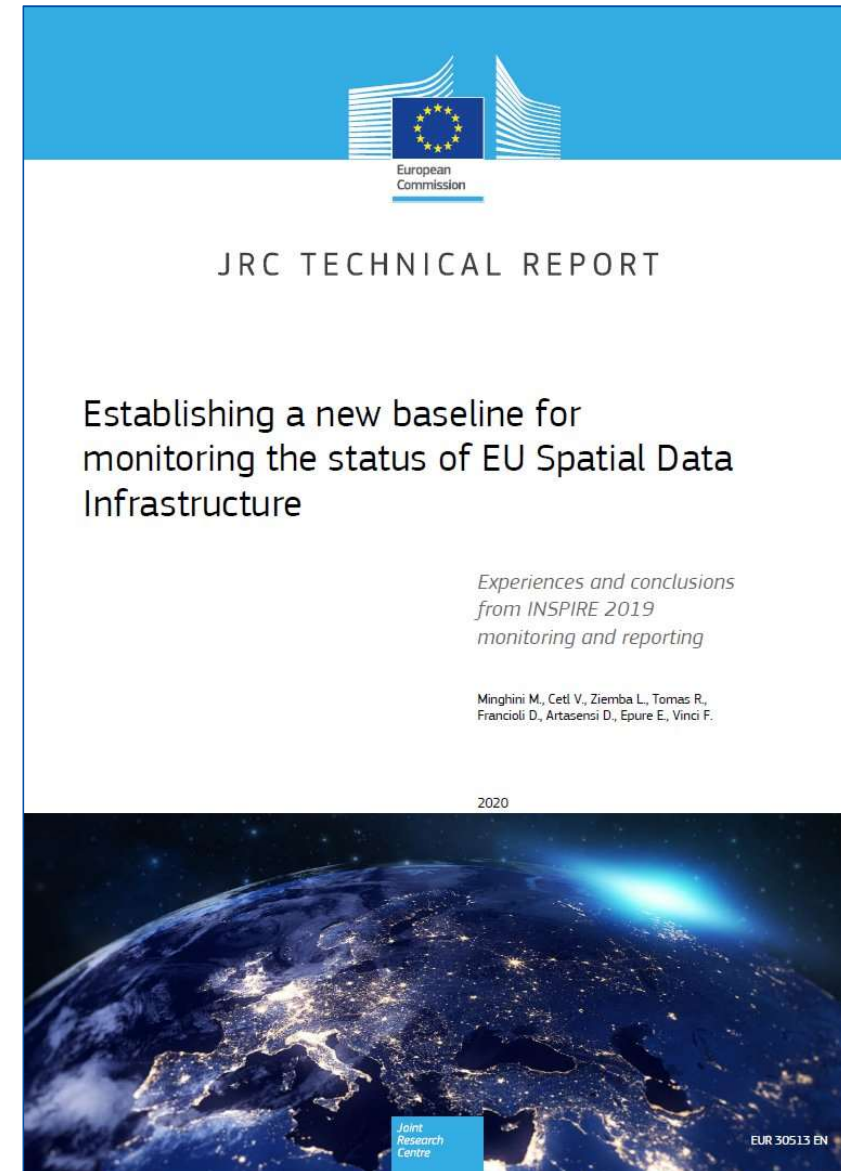
The section containing the deployment process using Docker image and troubleshooting section. You can also find these in the [training material](#)

<https://github.com/INSPIRE-MIF/helpdesk-validator/releases/tag/v2021.3>

# Technical Report on 2019 Monitoring and Reporting

- Published in December 2020:
  - description of **process, results & lessons learnt**

<https://europa.eu/!VX83UY>



# Monitoring and Reporting 2020 – Indicators

- Indicators grouped into 5 categories:

- availability of spatial data and services
  - DSi1.1, DSi1.2, DSi1.3, DSi1.4, DSi1.5

**absolute values**

- conformity of metadata
  - MDi1.1, MDi1.2
- conformity of spatial data sets
  - DSi2, DSi2.1, DSi2.2, DSi2.3
- accessibility of spatial data sets
  - NSi2, NSi2.1, NSi2.2
- conformity of network services
  - NSi4, NSi4.1, NSi4.2, NSi4.3, NSi4.4

**relative values**  
(percentages)

# Monitoring and Reporting 2020 – Indicators

- Indicators grouped into 5 categories:

- availability of spatial data and services

- DSi1.1, DSi1.2, DSi1.3, DSi1.4, DSi1.5

- conformity of metadata

- MDi1.1, MDi1.2

- conformity of spatial data sets

- DSi2, DSi2.1, DSi2.2, DSi2.3

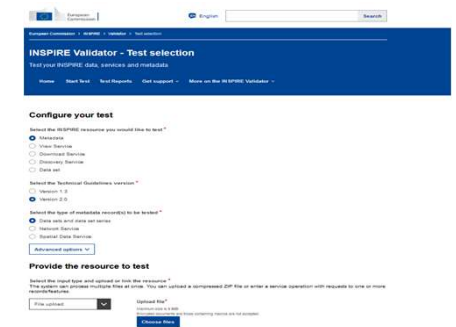
- accessibility of spatial data sets

- NSi2, NSi2.1, NSi2.2

- conformity of network services

- NSi4, NSi4.1, NSi4.2, NSi4.3, NSi4.4

**INSPIRE  
Reference  
Validator**  
(metadata  
validation)





**INSPIRE  
Geoportal**  
(linkages check)





# INSPIRE Geoportal – Preparation for Monitoring and Reporting 2021

- Preview of values of the 17 indicators calculated by the Geoportal through the harvest console:

 RO	RO_ANCPI - Serviciul de căutare al geoportalului INSPIRE al României	ANCPI	Fri Sep 10 2021 12:48:03 GMT+0200 (Central European Summer Time) <a href="#">Check last report</a>	<b>Check and publish</b> Schedule a new harvest	 Pending publish
--	--	-------	---	--	---

# INSPIRE Geoportal – Preparation for Monitoring and Reporting 2021

- Preview of values of the 17 indicators calculated by the Geoportal through the harvest console:

## Harvesting report




Executed on 2021-09-10 12:48:02. Retrieved metadata records count: 179

### Complete overview of the harvest session

 103 Data Set and Series records Last published harvest: 103	 16 Downloadable Data Sets Last published harvest: 35	 25 Viewable Data Sets Last published harvest: 38
---	--	--

### Filtered results

#### By Priority Datasets

 27 Data Set and Series records Last published harvest: 28	 1 Downloadable Data Sets Last published harvest: 10	 10 Viewable Data Sets Last published harvest: 10
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### Resources for which linkage issues were found

The following section highlights metadata records with missing Download Service and relative link and/or missing View service.

[Click here to expand this section](#)

Geoportal helpdesk: ask a question

Calculate indicators

Do not publish yet

Publish

# INSPIRE Reference Validator – Preparation for Monitoring and Reporting 2021

- Conformance Class 2 *INSPIRE* data sets and data set series interoperability metadata will be added (compared to last year):
  - included by default when validating data set metadata in the new UI

Select the type of metadata record(s) to be tested

- Data sets and data set series
- Network Service
- Spatial Data Service

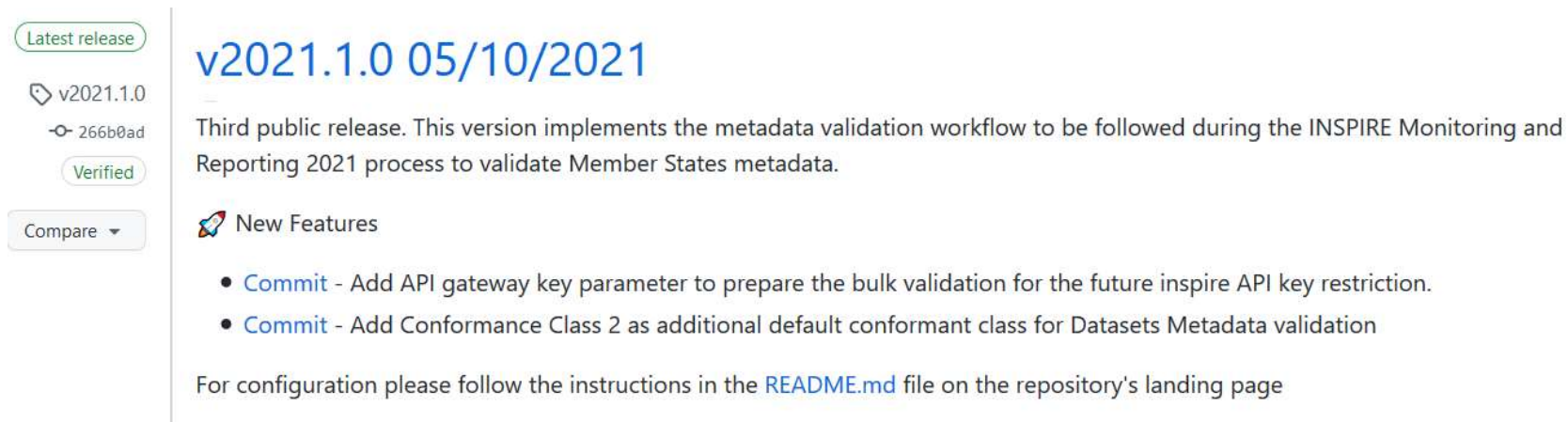
Advanced options ^

Select the conformance classes to be assessed

- Common Requirements for ISO/TC 19139:2007 based INSPIRE metadata records ([source](#))
- Conformance Class 1: 'Baseline metadata for data sets and data set series ([source](#))
- Conformance Class 2: 'INSPIRE data sets and data set series interoperability metadata' ([source](#))
- Conformance Class 2b: 'INSPIRE data sets and data set series metadata for Monitoring' ([source](#))

# Bulk validation tool – v.2021.1.0

- Allows to validate large numbers of metadata:
  - using the Validator [API](#)
  - based on [Pentaho Data Integration](#) (PDI)
- New version including the additional Conformance Class 2:
  - to be used with [your own instance](#) of the INSPIRE Reference Validator!



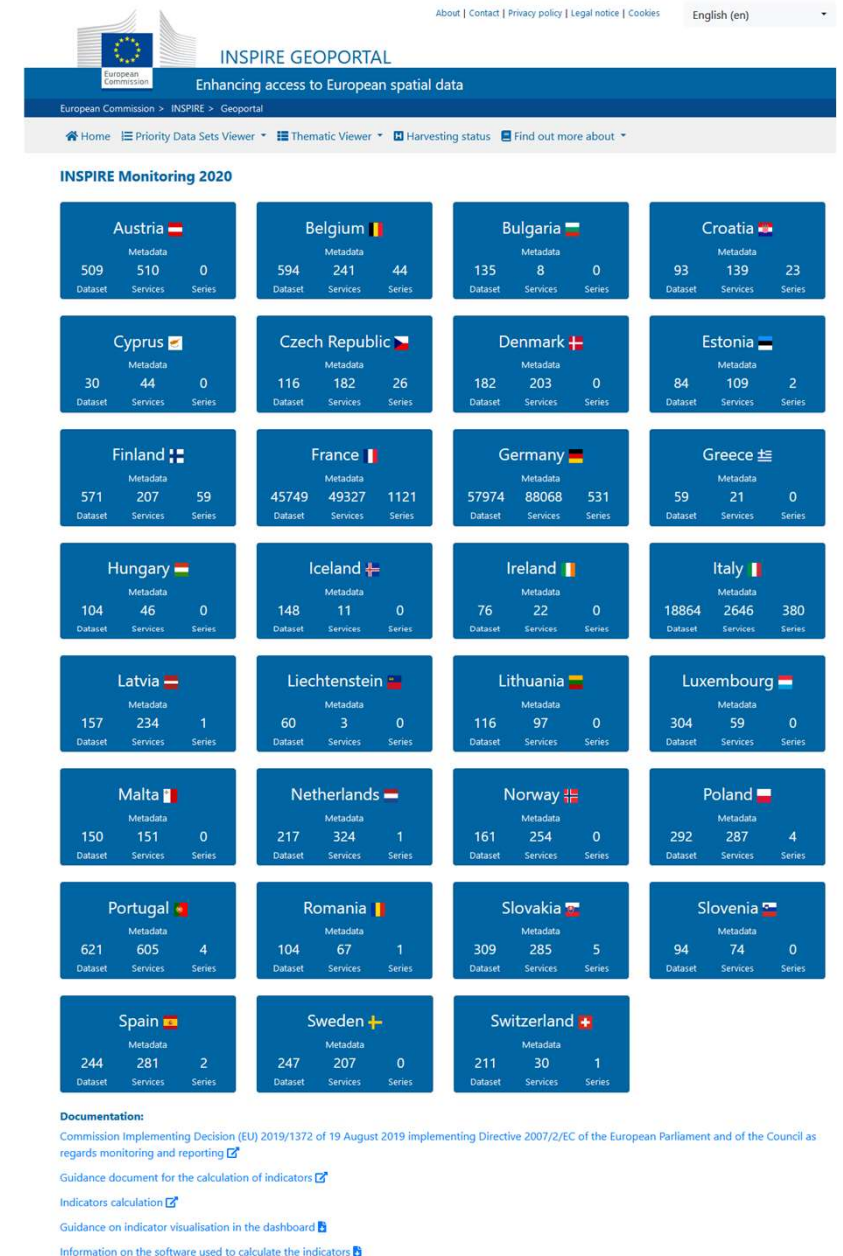
The screenshot shows a GitHub release page for the 'v2021.1.0' tag, dated '05/10/2021'. The release is marked as the 'Latest release' and is 'Verified'. The commit hash is '266b0ad'. The release description states: 'Third public release. This version implements the metadata validation workflow to be followed during the INSPIRE Monitoring and Reporting 2021 process to validate Member States metadata.' Under the heading 'New Features', there are two bullet points: 'Commit - Add API gateway key parameter to prepare the bulk validation for the future inspire API key restriction.' and 'Commit - Add Conformance Class 2 as additional default conformant class for Datasets Metadata validation'. At the bottom, it says 'For configuration please follow the instructions in the [README.md](#) file on the repository's landing page'.

<https://github.com/inspire-eu-validation/monitoring-bulk-validation-tool/releases/tag/v2021.1.0>

# Monitoring and Reporting 2020 – Dashboard

- Landing page:
  - number of data sets, data set series & services for all countries
  - documentation to help understand the results

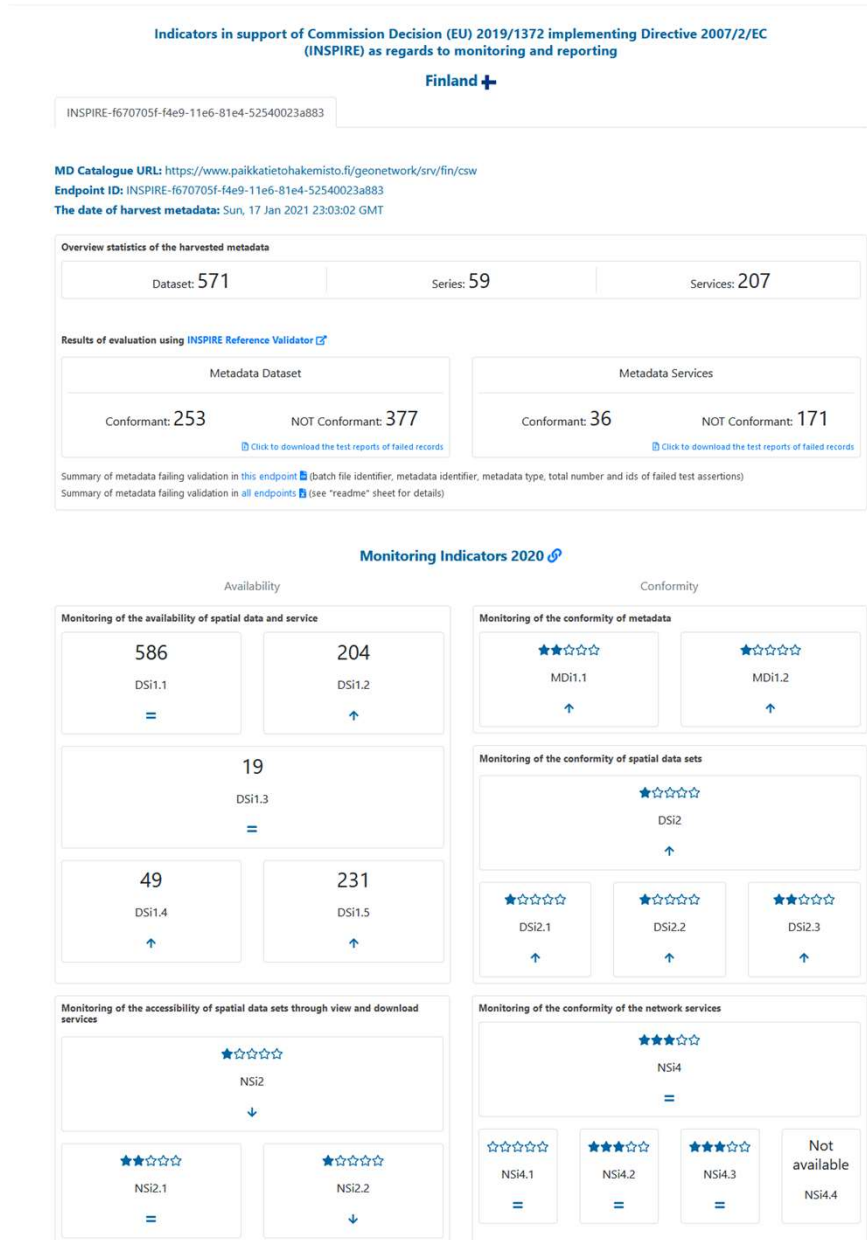
<https://inspire-geoportal.ec.europa.eu/mr2020.html>



# Monitoring and Reporting 2020 – Dashboard

- Country-specific page:
  - overview statistics: number of data sets, data set series & services, number of conformant & non conformant metadata
  - values of Monitoring and Reporting 2020 indicators

<https://inspire-geoportal.ec.europa.eu/mr2020.html>





# Monitoring and Reporting 2020 – Dashboard

- New visualization of indicators

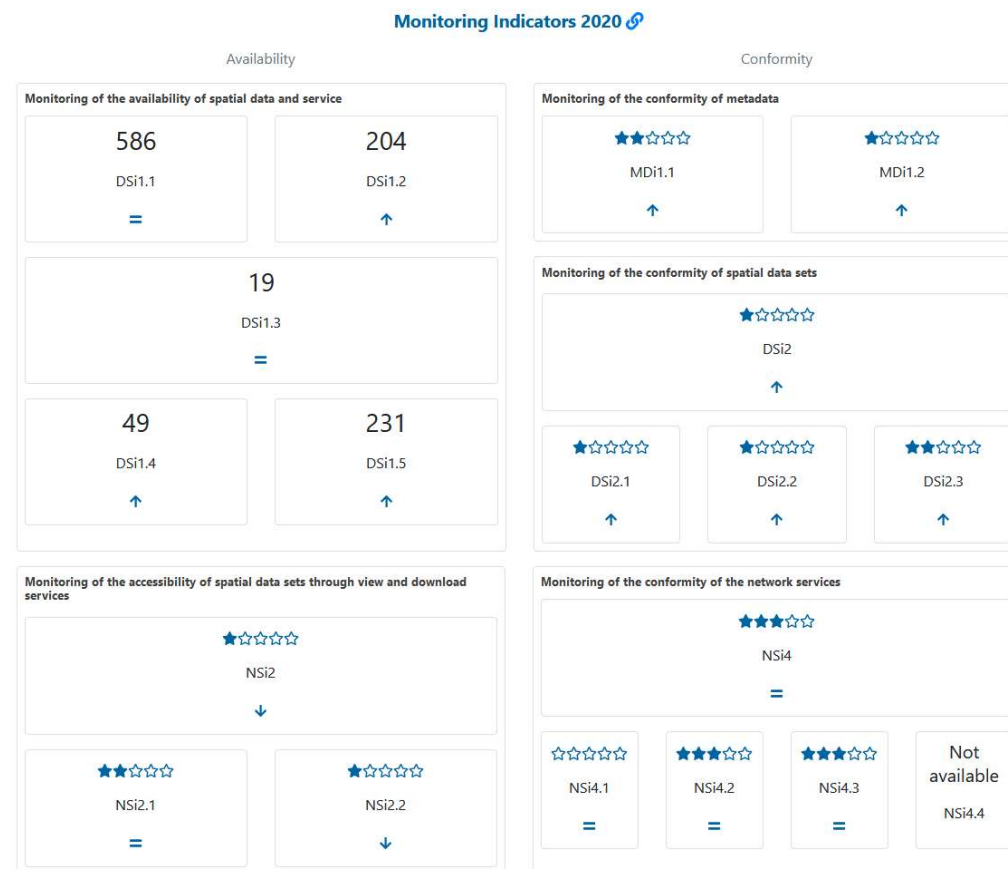
- star-based scoring system (for percentage indicators):

☆☆☆☆☆	$0 \leq X < 10\%$
★☆☆☆☆	$10\% \leq X < 30\%$
★★☆☆☆	$30\% \leq X < 50\%$
★★★☆☆	$50\% \leq X < 70\%$
★★★★☆	$70\% \leq X < 90\%$
★★★★★	$90\% \leq X \leq 100\%$

- comparison against 2019 results:

- for relative number indicators:
  - ↑ increase of at least 10%
  - ↓ decrease of at least 10%
  - = increase or decrease of less than 10%
- for absolute number indicators:

same rule but considering 10% of the 2019 values



# Monitoring and Reporting 2020 – Dashboard

- Documentation

- ▼ Notes on MDi1.1 and MDi1.2 evaluation

The evaluation of these indicators involves a validation of the collected metadata through the [Reference Validator \(v2020.3\)](#).

In case of a metadata document aligned with the *INSPIRE MD TG v2.0*:

- ✓ if the recognized INSPIRE Resource Type is "**dataset**" or "**series**" the applied executable test suite is "**Conformance Class 2b: INSPIRE data sets and data set series metadata for Monitoring**".
- ✓ if the recognized INSPIRE Resource Type is "**service**" the applied executable test suite is:
  - ✓ "**Conformance Class 4: INSPIRE Network Services metadata**", if the service is a Network Service (service type equal to "view", "download", "discovery" or "transformation")
  - ✓ "**Conformance Class 5: INSPIRE Invocable Spatial Data Services metadata**", if the service is an Invocable Spatial Data Service (service type equal to "other")

## Documentation:

[Commission Implementing Decision \(EU\) 2019/1372 of 19 August 2019 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards monitoring and reporting](#)

[Guidance document for the calculation of indicators](#)

[Indicators calculation](#)

[Guidance on indicator visualisation in the dashboard](#)

[Information on the software used to calculate the indicators](#)

## Implementing Decision

explanation of how indicators are calculated

explanation of indicator visualisation

info on the versions of Geoportal & Validator used

# Results from the metadata validation

Results of evaluation using [INSPIRE Reference Validator](#)

Metadata Dataset	
Conformant: 253	NOT Conformant: 377
<a href="#">Click to download the test reports of failed records</a>	

Metadata Services	
Conformant: 36	NOT Conformant: 171
<a href="#">Click to download the test reports of failed records</a>	

Summary of metadata failing validation in [this endpoint](#) (batch file identifier, metadata identifier, metadata type, total number and ids of failed test assertions)

Summary of metadata failing validation in [all endpoints](#) (see "readme" sheet for details)

**ZIP files including failed reports in HTML and JSON**

# Results from the metadata validation

Results of evaluation using [INSPIRE Reference Validator](#)

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Summary of metadata failing validation in [this endpoint](#) (batch file identifier, metadata identifier, metadata type, total number and ids of failed test assertions)

Summary of metadata failing validation in [all endpoints](#) (see "readme" sheet for details)

	A	B	C	D	E
1	file_id	md_id	type	error_count	errors
2	1-20/12	ac9bd95a-0063-4157-95ec-dd91e22c1eed	dataset	8	C.1 C.5 C.14 C.17 C.22 1.4 1.5 1.6
3	1-20/14	70c8c42a-9344-462b-b50c-21960aa808ef	dataset	10	C.1 C.5 C.6 C.14 C.15 C.17 C.18 C.22 1.6 1.10
4	1-20/10	48c955c8-70bd-451b-af94-c5069d3b54f6	dataset	3	C.5 C.17 1.6
5	1-20/1	af0a8b4f-acf0-4e0f-8552-feb23b94f835	service	4	C.5 C.17 3.1 3.8
6	1-20/11	15298bed-01ca-45b0-8ec7-e0960e88626b	service	6	C.1 C.5 C.6 C.17 3.1 3.8
7	1-20/15	24460d92-e93a-486c-9144-b4b6b5a71f88	dataset	5	C.5 C.15 C.17 C.18 1.6
8	1-20/16	7f3cba03-842f-405c-9f10-7725f0f01d14	service	6	C.1 C.17 1.1 1.3 1.4 1.6
9	1-20/2	f17fc16c-ad08-4880-92f2-7d8fe2fad07b	service	4	C.5 C.17 3.1 3.8
10	1-20/5	763d5253-09ba-4b97-9836-ce93e945d3f2	dataset	5	C.5 C.6 C.17 C.18 1.6
11	1-20/17	e7cba4f8-6de9-468d-8ca4-453995f0e357	dataset	8	C.5 C.17 1.3 1.4 1.6 1.8 1.10 1.11
12	1-20/7	dda3c903-04d6-4af5-b3a6-9f2a489f6c46	dataset	6	C.5 C.6 C.15 C.17 C.18 1.6
13	101-120/10	39979b2f-e7aa-4177-9a9d-69b563f00f91	service	5	C.5 C.17 C.18 3.1 3.8
14	101-120/12	f6c316aa-283a-4621-a50f-e3ff4f2ddb83	dataset	5	C.1 C.5 C.17 C.22 1.6
15	1-20/4	a905569b-1c8b-4291-9e68-c90c39b9ec63	service	5	C.5 C.17 3.1 3.6 3.8
16	1-20/9	0bb3167b-084e-4e36-a51a-f01a5ac8a1ad	service	5	C.5 C.17 3.1 3.6 3.8
17	101-120/14	0adc3a08-0a5a-40a9-a6d0-a7979d7522fc	dataset	5	C.5 C.6 C.14 C.17 1.6
18	101-120/16	a8f60c18-168d-475b-9d0d-fc9ea17dc31b	service	6	C.10 C.17 1.1 1.3 1.4 1.10
19	1-20/6	560c40-8612-4162-945-742620b-7076	dataset	8	C.1 C.5 C.14 C.17 C.22 1.5 1.6 1.10

# Results from the metadata validation

Results of evaluation using [INSPIRE Reference Validator](#)

Metadata Dataset

Conformant: **253**      NOT Conformant: **377**

[Click to download the test reports of failed records](#)

Metadata Services

Conformant: **36**      NOT Conformant: **171**

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	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
1	Country	Endpoint ID	md_failed	C.1	C.2	C.5	C.6	C.7	C.8	C.9	C.10	C.11	C.12	C.13	C.14	C.15	C.16	C.17	C.18	C.19	C.20	C.21
2	AT	INSPIRE-61494	43	0	0	5	0	0	0	0	0	0	0	0	0	0	0	16	4	0	0	0
3	BE	INSPIRE-21055	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	BE	INSPIRE-b285fc	28	14	0	0	0	0	0	0	0	0	0	0	0	2	0	10	13	0	11	0
5	BE	INSPIRE-f0c917	76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	1	0	0	0
6	BE	INSPIRE-f5201e	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	BG	INSPIRE-e61d4	8	3	0	0	0	0	0	0	1	0	0	0	0	0	0	8	2	0	1	0
8	CH	INSPIRE-7a076	30	0	0	2	20	0	0	0	3	0	0	0	0	0	1	30	30	0	27	0
9	CY	INSPIRE-db3ec	44	0	0	44	0	0	0	0	0	0	0	0	0	0	0	44	0	0	0	0
10	CZ	INSPIRE-16542	38	9	0	0	0	0	0	0	0	0	1	0	0	10	4	6	0	0	3	0
11	DE	INSPIRE-4fed3e	18017	30	0	15257	4	0	2	2	2	1	2	20	20	815	47	17372	384	0	20	0
12	DK	INSPIRE-6e835	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
13	EE	INSPIRE-608e4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	EL	INSPIRE-b4838	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	ES	INSPIRE-c6f32	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	FI	INSPIRE-f6707	171	34	0	148	53	0	3	3	10	0	0	2	3	8	4	158	35	0	4	0
17	FR	INSPIRE-5145f	49313	682	0	3557	876	0	42	351	446	150	8	0	211	307	48	49312	1049	0	3292	0



# Overall results – 2020 performance



	DSi1.1	DSi1.2	DSi1.3	DSi1.4	DSi1.5	MDi1.1	MDi1.2	DSi2	DSi2.1	DSi2.2	DSi2.3	NSi2	NSi2.1	NSi2.2	NSi4	NSi4.1	NSi4.2	NSi4.3	NSi4.4
AT	509	510	137	265	244	95%	92%	66%	75%	69%	61%	83%	93%	85%	93%	100%	89%	97%	#N/A
BE	636	241	355	531	94	86%	49%	62%	95%	22%	65%	86%	89%	90%	88%	67%	89%	88%	#N/A
BG	132	8	115	42	79	0%	0%	85%	82%	11%	97%	58%	60%	58%	50%	50%	100%	0%	#N/A
CH	212	30	0	0	1	0%	0%	2%	7%	2%	0%	1%	2%	1%	0%	0%	0%	0%	#N/A
CY	30	44	9	0	0	0%	0%	3%	0%	50%	0%	40%	53%	80%	0%	#N/A	0%	0%	#N/A
CZ	142	182	33	55	84	58%	79%	39%	87%	73%	24%	37%	62%	40%	80%	100%	75%	84%	100%
DE	58504	88068	144	2098	135	19%	80%	55%	58%	50%	55%	61%	64%	63%	98%	100%	98%	99%	#N/A
DK	180	203	48	0	178	63%	99%	52%	95%	38%	48%	32%	44%	40%	91%	#N/A	89%	92%	#N/A
EE	86	109	24	0	86	100%	100%	100%	100%	100%	100%	42%	56%	42%	96%	0%	94%	100%	#N/A
EL	59	21	54	0	35	98%	100%	3%	40%	#N/A	0%	100%	100%	100%	5%	100%	0%	0%	#N/A
ES	246	281	91	47	181	96%	98%	68%	93%	89%	61%	65%	76%	68%	71%	100%	67%	85%	#N/A
FI	586	204	19	49	231	43%	18%	25%	16%	15%	33%	15%	40%	20%	54%	0%	53%	58%	#N/A
FR	45587	49326	136	0	89	0%	0%	9%	10%	12%	9%	0%	5%	1%	1%	6%	2%	0%	0%
HR	116	139	16	0	56	51%	100%	13%	6%	7%	13%	2%	16%	6%	37%	33%	28%	53%	#N/A
HU	110	48	19	0	1	0%	0%	31%	36%	28%	35%	4%	5%	8%	17%	60%	10%	15%	#N/A
IE	76	22	42	0	76	96%	5%	100%	100%	100%	100%	0%	0%	0%	100%	100%	100%	100%	#N/A
IS	148	11	0	2	42	27%	36%	34%	94%	100%	93%	0%	0%	21%	83%	#N/A	67%	100%	#N/A
IT	19122	2645	128	9572	813	51%	5%	8%	6%	11%	12%	1%	3%	1%	1%	0%	2%	0%	0%
LI	60	3	0	0	47	0%	0%	15%	11%	17%	9%	15%	20%	17%	0%	#N/A	0%	0%	#N/A
LT	116	97	93	0	116	96%	100%	98%	97%	100%	99%	31%	31%	89%	94%	100%	90%	98%	#N/A
LU	304	59	92	0	304	99%	98%	70%	100%	92%	59%	84%	88%	94%	100%	100%	100%	100%	#N/A
LV	158	234	61	0	0	0%	0%	73%	76%	63%	79%	53%	59%	55%	4%	#N/A	6%	2%	#N/A
MT	150	151	51	0	150	70%	89%	95%	93%	100%	94%	81%	98%	83%	0%	0%	0%	0%	#N/A
NL	218	324	36	0	207	22%	67%	47%	67%	64%	38%	57%	63%	61%	92%	#N/A	93%	92%	#N/A
NO	161	254	14	2	158	1%	0%	43%	68%	43%	37%	14%	17%	42%	0%	0%	0%	0%	#N/A
PL	296	287	60	1	122	36%	6%	40%	91%	13%	29%	16%	17%	34%	83%	100%	72%	88%	#N/A
PT	625	605	145	233	292	55%	41%	41%	65%	41%	38%	56%	80%	64%	55%	#N/A	56%	53%	#N/A
RO	105	67	28	15	88	93%	97%	38%	70%	31%	29%	30%	33%	30%	89%	100%	93%	83%	#N/A
SE	247	206	58	0	247	91%	75%	100%	99%	100%	100%	72%	81%	81%	100%	100%	99%	100%	#N/A
SI	94	74	9	0	80	70%	89%	61%	75%	57%	62%	12%	40%	16%	92%	#N/A	86%	100%	#N/A
SK	286	285	61	5	198	60%	75%	3%	5%	3%	1%	21%	27%	24%	31%	14%	29%	34%	0%



# Overall results – Comparison vs. 2019

increase of at least 10% compared to 2019  
 increase/decrease of less than 10% compared to 2019  
 decrease of at least 10% compared to 2019

	DSi1.1	DSi1.2	DSi1.3	DSi1.4	DSi1.5	MDi1.1	MDi1.2	DSi2	DSi2.1	DSi2.2	DSi2.3	NSi2	NSi2.1	NSi2.2	NSi4	NSi4.1	NSi4.2	NSi4.3	NSi4.4
AT	509	510	137	265	244	95%	92%	66%	75%	69%	61%	83%	93%	85%	93%	100%	89%	97%	#N/A
BE	636	241	355	531	94	86%	49%	62%	95%	22%	65%	86%	89%	90%	88%	67%	89%	88%	#N/A
BG	132	8	115	42	79	0%	0%	85%	82%	11%	97%	58%	60%	58%	50%	50%	100%	0%	#N/A
CH	212	30	0	0	1	0%	0%	2%	7%	2%	0%	1%	2%	1%	0%	0%	0%	0%	#N/A
CY	30	44	9	0	0	0%	0%	3%	0%	50%	0%	40%	53%	80%	0%	#N/A	0%	0%	#N/A
CZ	142	182	33	55	84	58%	79%	39%	87%	73%	24%	37%	62%	40%	80%	100%	75%	84%	100%
DE	58504	88068	144	2098	135	19%	80%	55%	58%	50%	55%	61%	64%	63%	98%	100%	98%	99%	#N/A
DK	180	203	48	0	178	63%	99%	52%	95%	38%	48%	32%	44%	40%	91%	#N/A	89%	92%	#N/A
EE	86	109	24	0	86	100%	100%	100%	100%	100%	100%	42%	56%	42%	96%	0%	94%	100%	#N/A
EL	59	21	54	0	35	98%	100%	3%	40%	#N/A	0%	100%	100%	100%	5%	100%	0%	0%	#N/A
ES	246	281	91	47	181	96%	98%	68%	93%	89%	61%	65%	76%	68%	71%	100%	67%	85%	#N/A
FI	586	204	19	49	231	43%	18%	25%	16%	15%	33%	15%	40%	20%	54%	0%	53%	58%	#N/A
FR	45587	49326	136	0	89	0%	0%	9%	10%	12%	9%	0%	5%	1%	1%	6%	2%	0%	0%
HR	116	139	16	0	56	51%	100%	13%	6%	7%	13%	2%	16%	6%	37%	33%	28%	53%	#N/A
HU	110	48	19	0	1	0%	0%	31%	36%	28%	35%	4%	5%	8%	17%	60%	10%	15%	#N/A
IE	76	22	42	0	76	96%	5%	100%	100%	100%	100%	0%	0%	0%	100%	100%	100%	100%	#N/A
IS	148	11	0	2	42	27%	36%	34%	94%	100%	93%	0%	0%	21%	83%	#N/A	67%	100%	#N/A
IT	19122	2645	128	9572	813	51%	5%	8%	6%	11%	12%	1%	3%	1%	1%	0%	2%	0%	0%
LI	60	3	0	0	47	0%	0%	15%	11%	17%	9%	15%	20%	17%	0%	#N/A	0%	0%	#N/A
LT	116	97	93	0	116	96%	100%	98%	97%	100%	99%	31%	31%	89%	94%	100%	90%	98%	#N/A
LU	304	59	92	0	304	99%	98%	70%	100%	92%	59%	84%	88%	94%	100%	100%	100%	100%	#N/A
LV	158	234	61	0	0	0%	0%	73%	76%	63%	79%	53%	59%	55%	4%	#N/A	6%	2%	#N/A
MT	150	151	51	0	150	70%	89%	95%	93%	100%	94%	81%	98%	83%	0%	0%	0%	0%	#N/A
NL	218	324	36	0	207	22%	67%	47%	67%	64%	38%	57%	63%	61%	92%	#N/A	93%	92%	#N/A
NO	161	254	14	2	158	1%	0%	43%	68%	43%	37%	14%	17%	42%	0%	0%	0%	0%	#N/A
PL	296	287	60	1	122	36%	6%	40%	91%	13%	29%	16%	17%	34%	83%	100%	72%	88%	#N/A
PT	625	605	145	233	292	55%	41%	41%	65%	41%	38%	56%	80%	64%	55%	#N/A	56%	53%	#N/A
RO	105	67	28	15	88	93%	97%	38%	70%	31%	29%	30%	33%	30%	89%	100%	93%	83%	#N/A
SE	247	206	58	0	247	91%	75%	100%	99%	100%	100%	72%	81%	81%	100%	100%	99%	100%	#N/A
SI	94	74	9	0	80	70%	89%	61%	75%	57%	62%	12%	40%	16%	92%	#N/A	86%	100%	#N/A
SK	286	285	61	5	198	60%	75%	3%	5%	3%	1%	21%	27%	24%	31%	14%	29%	34%	0%

# Monitoring and Reporting 2020 - Conclusions

- Process prepared well in advance:
  - clear **release plans** and **changelogs** for the software used
  - clear **communication** on testing periods
  - availability of **tools** for Member States to pre-calculate the indicators
- **Results:**
  - on average, **implementation improved** compared to 2019
    - improved **conformity of metadata** (including transition to TG v.2.0)
    - improved **accessibility of data sets**
  - full implementation still to be achieved
  - implementation still **heterogeneous across Member States**

# Thank you!



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