



# Calculation of INSPIRE Monitoring and Reporting indicators

# M&R Indicators

## Monitoring of the availability of spatial data and services (1/2)

- Indicators on data set, series and services metadata

<b>DSi1.1</b>	The number of spatial data sets for which metadata exist	Number of all <b>data set and series metadata records</b> published by the Member States in their registered discovery services.
<b>DSi1.2</b>	The number of spatial data services for which metadata exist	Number of all <b>spatial data services metadata records</b> published by the Member States in their registered discovery services.

- The INSPIRE Geoportal evaluates metadata records, obtained from all the registered services available by **December 15<sup>th</sup>** of every year.
- For these indicators, the INSPIRE Geoportal ignores any omissions or errors in the **theme keyword** element.
- INSPIRE Geoportal checks for **duplicates**: if present they are counted as one.

# M&R Indicators

## Monitoring of the availability of spatial data and services (2/2)

- Priority Data Set keyword

<b>DSi1.3</b>	The number of spatial data sets for which the metadata contains one or more keywords from a register provided by the Commission indicating that the spatial data set is used for reporting under the environmental legislation	Number of metadata records <b>tagged with one or more Priority data set keywords</b> in the metadata "Keyword" element.
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- Spatial Scope keyword

<b>DSi1.4</b>	The number of spatial data sets for which the metadata contains a keyword from a register provided by the Commission indicating that the spatial data set covers <b>regional</b> territory	Number of metadata records tagged with the " <b>Regional</b> " value as SpatialScope keyword in the metadata "Keyword" element.
<b>DSi1.5</b>	The number of spatial data sets for which the metadata contains a keyword from a register provided by the Commission indicating that the spatial data set covers <b>national</b> territory	Number of metadata records tagged with the " <b>National</b> " value as SpatialScope keyword in the metadata "Keyword" element.

- For the above indicators, INSPIRE Geoportal considers every metadata record with at least one keyword ID (extracted from gmx:anchor/@xlink:href) **matched against the IDs of the proper metadata code lists** (Spatial Scope, Priority Data sets) values.

# M&R Indicators

## Monitoring of the conformity of metadata

- Conformity of metadata, **validated by the INSPIRE Reference Validator**

<b>MDi1.1</b>	Percentage of metadata for <b>spatial data sets</b> conformant with Commission Regulation (EC) No 1205/2008 as regards metadata	<p>This percentage value is obtained as <math>P_{MDi1.1} = N \times 100 \div DSi1.1</math></p> <p>Where N is the number of conformant metadata records the INSPIRE Geoportal verifies, that successfully pass the following tests:</p> <ul style="list-style-type: none"><li>• <b>“Conformance Class 2: INSPIRE data sets and data set series interoperability metadata”</b> and <b>“Conformance Class 2b: INSPIRE data sets and data set series metadata for Monitoring”</b> for Spatial data sets and series</li></ul>
<b>MDi1.2</b>	Percentage of metadata for <b>spatial data services</b> conformant with Commission Regulation (EC) No 1205/2008 as regards metadata	<p>This percentage value is obtained as <math>P_{MDi1.2} = N \times 100 \div DSi1.2</math></p> <p>Where N is the number of conformant metadata records the INSPIRE Geoportal verifies, that successfully pass the following tests:</p> <ul style="list-style-type: none"><li>• <b>“Conformance Class 4: INSPIRE Network Services metadata”</b>, for Network Services</li><li>• <b>“Conformance Class 5: INSPIRE Invocable Spatial Data Services metadata”</b>, for Invocable Spatial Data Services</li></ul>

- Starting from the 2020 Monitoring and Reporting exercise, only MD TG v2.0 will be accepted.

# M&R Indicators

## Monitoring of the conformity of spatial data sets

- Declared conformity of metadata and Annex I/II/III

<b>DSi2</b>	Percentage of spatial data sets that are in conformity with Commission Regulation (EU) No 1089/2010 as regards interoperability of spatial data sets	<p>The percentage value is obtained as <math>P_{DSi2.x} = N \times 100 \div DSi1.1</math></p> <p>For <b>DSi2 indicator</b>, N is the number of metadata dataset records with the declared conformity with Regulation 1089/2010.</p> <p>For instance, in the metadata the conformity could be expressed with:</p>
<b>DSi2.1</b>	Percentage of spatial data sets, corresponding to the <b>themes listed in Annex I</b> , that are in conformity with Commission Regulation (EU) No 1089/2010 as regards interoperability of spatial data sets	<pre>&lt;gmd:title&gt; &lt;gmx:Anchor link:href="http://data.europa.eu/eli/reg/2010/1089"&gt; COMMISSION REGULATION (EU) No 1089/2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services &lt;/gmx:Anchor&gt; &lt;/gmd:title&gt;</pre> <p>See note [1] below for the complete requirement.</p>
<b>DSi2.2</b>	Percentage of spatial data sets, corresponding to the <b>themes listed in Annex II</b> , that are in conformity with Commission Regulation (EU) No 1089/2010 as regards interoperability of spatial data sets	<p>For <b>DSi2.x indicators</b>, it also taken into account the presence of at least one theme listed in the relative Annex.</p> <p>For instance, in the metadata the theme keyword could be expressed with:</p>
<b>DSi2.3</b>	Percentage of spatial data sets, corresponding to the <b>themes listed in Annex III</b> , that are in conformity with Commission Regulation (EU) No 1089/2010 as regards interoperability of spatial data sets	<pre>&lt;gmd:keyword&gt; &lt;gmx:Anchor xlink:href="http://inspire.ec.europa.eu/theme/ac"&gt;Atmospheric conditions&lt;/gmx:Anchor&gt; &lt;/gmd:keyword&gt;</pre> <p>See note [2] for the complete requirement.</p>

- 1) For the "Conformity" element, refer to [chapter 2.4.1 of MD TG v2.0](#)
- 2) For the Keywords for Spatial Data Theme, refer to [chapter 3.1.2.2 of MD TG v2.0](#)

# M&R Indicators

## Monitoring of the accessibility of spatial data sets through view and download services

- Downloadable and Viewable

<b>NSi2</b>	The percentage of spatial data sets that are accessible through view and the download services	The percentage value is obtained as $P_{NSi2.x} = N \times 100 \div DSi1.1$ Where N is the number the INSPIRE Geoportal considers: <ul style="list-style-type: none"><li>• as viewable, every data set for which at least one view network service could be correctly established/linked.</li><li>• as downloadable, every data set for which:<ul style="list-style-type: none"><li>• at least one download network service could be established/linked</li><li>• data could be successfully retrieved (from 0 up to 10Mb)</li></ul></li></ul>
<b>NSi2.1</b>	The percentage of spatial data sets that are accessible through <b>view</b> services	
<b>NSi2.2</b>	The percentage of spatial data sets that are accessible through <b>download</b> services	

- Refer to the document “Geoportal workflow for establishing links between data sets and network services” - [Click here](#)

# M&R Indicators

## Monitoring of the conformity of network services

- Declared conformity of Network Services (1/2)

<b>NSi4</b>	Percentage of the <b>network services</b> that are in conformity with Commission Regulation (EC) No 976/2009 as regards the Network Services	<p>The type of network service identification is based on:</p> <ul style="list-style-type: none"><li>Metadata element "Spatial Data Service Type", expressed for example as:</li></ul> <pre>&lt;srv:serviceType&gt; &lt;gco:LocalName codeSpace="http://inspire.ec.europa.eu/metadata-codelist/SpatialDataServiceType"&gt;view&lt;/gco:LocalName&gt; &lt;/srv:serviceType&gt;</pre> <p>Note: once the simplification option is endorsed, the necessary information about the service access point will be taken from data set metadata (Resource locator).</p> <p>The formulas are expressed in the next slide.</p>
<b>NSi4.1</b>	Percentage of the <b>discovery services</b> that are in conformity with Commission Regulation (EC) No 976/2009 as regards the Network Services	
<b>NSi4.2</b>	Percentage of the <b>view services</b> that are in conformity with Commission Regulation (EC) No 976/2009 as regards the Network Services	
<b>NSi4.3</b>	Percentage of the <b>download services</b> that are in conformity with Commission Regulation (EC) No 976/2009 as regards the Network Services	
<b>NSi4.4</b>	Percentage of the <b>transformation services</b> that are in conformity with Commission Regulation (EC) No 976/2009 as regards the Network Services	

# M&R Indicators

## Monitoring of the conformity of network services

- Declared conformity of Network Services (2/2)

<b>NSi4</b>	Percentage of the <b>network services</b> that are in conformity with Commission Regulation (EC) No 976/2009 as regards the Network Services	$P_{NS} = \frac{\sum_{ns \in \{DS, VW, DW, TS\}} N_{ns} \times 100}{\sum_{ns \in \{DS, VW, DW, TS\}} T_{ns}}$	<p><math>N_x</math> represent the number of that specific type of network services, in conformity with the Regulation No 976/2009</p> <p><math>T_x</math> represent the total number of that specific type of network services</p>
<b>NSi4.1</b>	Percentage of the <b>discovery services</b> that are in conformity with Commission Regulation (EC) No 976/2009 as regards the Network Services	$P_{DS} = N_{DS} \times 100 \div T_{DS}$	
<b>NSi4.2</b>	Percentage of the <b>view services</b> that are in conformity with Commission Regulation (EC) No 976/2009 as regards the Network Services	$P_{VW} = N_{VW} \times 100 \div T_{VW}$	
<b>NSi4.3</b>	Percentage of the <b>download services</b> that are in conformity with Commission Regulation (EC) No 976/2009 as regards the Network Services	$P_{DW} = N_{DW} \times 100 \div T_{DW}$	
<b>NSi4.4</b>	Percentage of the <b>transformation services</b> that are in conformity with Commission Regulation (EC) No 976/2009 as regards the Network Services	$P_{TS} = N_{TS} \times 100 \div T_{TS}$	