INSPIRE in e-Reporting: a win-win deal
an overview of technological approaches and cooperation demands

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Why INSPIRE for e-Reporting?

Reporting is an important use case for most INSPIRE themes.

Streamlining the reporting meanwhile leveraging INSPIRE acknowledgements of the Member States **lowers the costs** of data management and provision, reduces the reporting burden, leads to **better quality** and increased **data coherence**

pragmatic and stepwise approach!
There is no “one-size-fits-all” solution

Integration (AQD)

Extension (EU Registry)

Linked Approach (CDDA 2018)

the individual reporting specificities may suggest different solutions on a case-by-case basis
INSPIRE Extension approach

The Annex F of the INSPIRE Generic Conceptual Model provides general rules for INSPIRE extensions

**INSPIRE Data Specification Extensions project site:**
http://inspire-extensions.wetransform.to/index.html
INSPIRE Extension approach

**Major benefits**

extended data model “incorporates” the original INSPIRE data structure: shared workflows - e.g. ETL processes, DB structure and data management procedures - could feed at the same time reporting and INSPIRE data flows

- reduce the cost of data management, data quality checks, data provision
- increase data coherence

**Major challenges**

complexity of INSPIRE models and difficulties in the management of GML with current SW tools

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*Best performing when Reporting and INSPIRE models have several common information demands***
The EU Registry collects information on the facilities, installations and plants, which are obliged to report under the European Pollutant Release and Transfer Register (E-PRTR) Regulation and the Industrial Emissions Directive (IED).

EU Registry model extends the INSPIRE Production and Industrial Facilities.

Full description of the data model in EEA Reportnet
https://cdrtest.eionet.europa.eu/help/ied_registry
INSPIRE PF data model meets most of the EU Registry demands (sites, facilities, installation, installation parts)!

Extending the INSPIRE PF, the EU Registry inherits all those basic structures and succeeds to satisfy different reporting obligations (IED, E-PRTR) through a single model meanwhile building on INSPIRE efforts of Member States.

Sharing the most data structure, EU Registry will provide building blocks for the provision of harmonised INSPIRE PF data (deadline 2020)!
The “Linked” approach

“Where there are existing and well-established data flows for reporting, INSPIRE data models should be limited to providing spatial objects and attributes that allow joining the reporting data to the spatial objects (e.g. external object identifiers or thematic identifiers).”  INSPIRE Generic Conceptual Model – Sec. 6

The ‘linked approach’ does not extend INSPIRE data models in order to include new pieces of information or new constraints stemming from environmental legislation.

Conversely, it re-uses “as is” the INSPIRE data in order to get spatial reference and, potentially, other pieces of information relevant to environmental reporting purposes.
The “Linked” approach

Common information needs are provided by the INSPIRE spatial data sets whilst the specific reporting elements are provided by means of a thematic data set which of course contains “links” to relevant geospatial reference data.

The linking mechanism develops on two levels:

**dataset level** (link to the INSPIRE dataset -> data set name or endpoint of the service)

**record level** (link to the specific record in the thematic dataset)
Major benefits of the Linked approach

“as is” re-use of what already produced by Member States in conformity to INSPIRE.

- the same INSPIRE data can be re-used “as is” in different reporting obligations
- the same reporting obligation can easily link to data under different INSPIRE themes

“linking” mechanism intrinsic flexibility:

- flat structures for specific thematic data, avoiding difficulties related to consumption of GML
- possibility to harvest INSPIRE web services to retrieve needed INSPIRE data → benefit from the overall INSPIRE infrastructure: not just harmonised data (and data models) but as well interoperable metadata and services
Possible Challenges of the Linked approach

- Identification of INSPIRE datasets containing ‘authoritative’ information
- Matching of the corresponding objects in thematic and INSPIRE datasets

Potential risks could be mitigated by relevant information provided in the dataset & services metadata:
- Use of agreed keywords e.g. priority datasets metadata code list
- Detailed ‘lineage’ element e.g. specifying the encoding for the spatial object identifiers
The CDDA 2018 reporting

National Designated Areas (CDDA) is an annual voluntary data flow. It is the official source of protected area information from European countries to the World Database of Protected Areas (WDPA).

CDDA 2018 data model references INSPIRE Protected sites spatial data through “linked approach” (linking business data to INSPIRE spatial objects).

Common information demands in the two data flows are provided by the INSPIRE spatial data (geometry, legalFoundationDate, siteName). Specific business properties are provided in the CDDA thematic file.
The linking mechanism at the **dataset level** can be implemented via file name of the GML file or download service endpoint - typically a WFS. GML file name was used in the CDDA 2018 (system was not yet ready to harvest INSPIRE download services in an operational setting).

The linking mechanism at the **object level** uses INSPIRE identifier `inspireID`. 
Cooperation demands

spatial object identifiers (inspireIDs and thematic Identifiers)
- clear rules for the creation of identifiers, agreed at national or, even better, at European level
- information-sharing procedures for the departments in charge of the different data flows

Identification of authoritative INSPIRE data
- agreed instruction for “official” data labelling

data model development phase & organisational level
- information-sharing procedures for the departments in charge of the different related data flows.
Conclusions

“**It is important that INSPIRE and policy working groups for Reporting closely liaise and cooperate ... in order to further streamline reporting guidelines and harmonise them with INSPIRE data models and infrastructure**” - GCM Sec.6

- Independently from the methodological approach, the proficient reuse of INSPIRE in reporting contexts builds on strong cooperation of all involved actors.

INSPIRE in e-Reporting has a potential to be a “WIN-WIN” deal!

submission to a new reporting paradigm based on **active dissemination** and INSPIRE services **harvesting**.
THANK YOU FOR YOUR ATTENTION!

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https://inspire-helpdesk.eu