INSPIRE IR change proposal for the *Human Health and Safety* data theme (*EnvHealthDeterminantMeasure*) in the scope of creating END information exchange mechanism (EC, EEA, ETC)

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Outline:

- The context: END e-reporting alignment to INSPIRE
- END Noise level measurements according to INSPIRE Human Health and Safety
- Proposed revision of the Human Health data model
  - Bug-fixing
    - ‘source’ of the noise measurement
    - ‘component’ and ‘media’ of the concentration
  - Introduction of the measure ‘category’
The context: END e-reporting alignment to INSPIRE
HH data model contains a module to address environmental health determinants (envhealth). It offers a possibility to refer to:
- raw environmental health determinant measurement data. This model is based on ISO 19103 on measurements data. This model is extended for localised noise and concentration data, and may be extended in a similar way to other health determinants. EIONET code lists are recommended to describe these measurement data.
- aggregated environmental health determinant measurement data through linking with SU data model
- coverage data resulting from the interpolation of raw measurement data
Coverage option disregarded:

- No coverage-specific application schema defined for the HH data theme
- No coverage-specific feature type in the HH data model
- Not yet mature implementation of interoperable INSPIRE coverage services
- Vector data format was most used in previous noise map reporting
An environmental health determinant measure is characterized by a location, a type, and a measurement time. The measurement data are represented based on ISO 19103 measure class.
Noise level measurements as EnvHealthDeterminantMeasure spatial objects

**Issue:** Not possible to provide the ‘source’ of the noise

Data Specification on Human Health and Safety provide a specialisation of the ISO 19103 for the Noise and Concentration specific cases:

- A noise measurement is characterised by a source described in the EIONET code list
- A concentration measurement is characterised by the component whose concentration in a media is measured

*However the current implementation of the conceptual data model does not allow provision of none of the above.*
Current specialisation of the ISO 19103 for the Noise

\[ \text{element name} = "\text{measure}\" \text{ type} = "\text{gml:MeasureType}\" \rightarrow <\text{hh:measure uom} = "\text{db}\">50.0</\text{hh:measure}> \]
Current specialisation of the ISO 19103 for the Concentration

\[ \text{element name}="\text{measure}" \text{ type}="\text{gml:MeasureType}" \rightarrow \text{<hh:measure uom="db">50.0</hh:measure>} \]
Bug-fixing

**Proposed Solution:**
Provide noise measure *source* and concentration measure *component* and *media* as attributes of determinant-specific feature types

**Related modifications in the HH data model:**
Specialise the ‘EnvHealthDeterminantMeasure’ feature type by means of two determinant-specific feature types:

- EnvHealthDeterminant*NoiseMeasure* (with ‘source’ attribute)
- EnvHealthDeterminant*ConcentrationMeasure* (with 'component' and 'media’ attributes)

*Proposed solution preserves backwards compatibility of the HH application schema*
Proposed solution – UML diagram
**Issue:**

In the END noise maps, the noise level in a certain area is characterized by a db range relating to a specific sound level indicator (e.g. Lden 50-54).

The ISO 19103 Measure Type – (value, uom) pair – e.g. `<hh:measure uom="db">50.0</hh:measure>` is not fit for the characterization of noise levels measurements in the strategic noise maps.
END Noise level measurements as INSPIRE HH EnvHealthDeterminantMeasure

**Proposed Solution:**

Allow provision of environmental health determinant measurement either as ISO 19103 measure - e.g. 50 db - or as **category of measure** e.g. Lnight 50-54

**Related modifications in the HH data model:**

- add a **new attribute** aimed to provision of ‘measure categories’
- add a **new code list** from provision of measure category type values
- make the “measure” attribute optional
- add a **new constraint** “Environmental health determinant **measure shall be provided**, either as measure or category of measure”.

*Proposed solution preserves backwards compatibility of the HH application schema*
Proposed solution – UML diagram

https://www.epsilon-italia.it/public/HumanHealth-IR-ChangeProposal/
Current HH application schema

Revised schema

https://www.epsilon-italia.it/public/HumanHealth-IRChangeProposal.xsd
Roads in Agglomeration INSPIRE Priority Dataset conformant to revised HH
Highlights from the INSPIRE Community Forum
