Natural Hazards
and Earth System
Sciences

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Discussions

Interactive comment on "INSPIRE standards as framework for artificial intelligence applications: a landslides example" *by* Gioachino Roberti et al.

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Reviewer report: nhess-2020-134 "INSPIRE standards as framework for artificial intelligence applications: a landslides example"

In the presented work an application that tries to demonstrate the value of INSPIRE compliance in enhancing the knowledge interoperability in field of Landslide susceptibility analysis. The manuscript introduced, highlighted and discussed valuable information and critical points and current issues in mapping natural hazards using spatial data and AI.

However, the reviewer still need to discuss here some points that still need to be elaborated within the text for clear the confusion with readers, especially those who are on

various level of experience or scientific backgrounds.

General comments:

Abstract: 1- What kind of enhancement the authors refer to rather than standardize the knowledge interoperability using the standard vocabularies, please clarify this. 2- "The use of INSPIRE-standardized vocabularies in ontologies that express scientiïňĄc models promotes the adoption of the standards across the European Union and beyond" This sentence need enormous work to be carried to fulfill its objective, in your current work, how much or how far did you consider your present work contributes to this end? Taking in mind the various methods of the Risk assessment researcher: Data selection and representation, variable selection and optimization, modeling type physical to datamining...etc. 3- . As matter of fact, any analytical model using spatial data, suffers from uncertainty started with modeling ambiguity, surrogate data, error propagation..etc. in different extend, Therefore, the extension to Natural Risk zone susceptibility schema, need to consider the model accuracy assessment, validation and error quantification of data (spatial and aspatial) and used model

1 introduction L27 P2 : "EU countries are aligning and .... Europe (Cho and Crompvoets, 2019)." Most of the high quality sensors collected data and field works supported by scientists located in Europe, thus, Please mention the main rebuttals why the application still limited in literature

L43 P2: More standards are still missing need to be mentioned here, like: 1- Standards for input data volume concerning the study area extent and landslide type. 2- Standard for outcomes accuracy concerning the type/quality/amount and extent of reserch details coverage.

L45 P2 : "Deep learning techniques....such as JPEG, or WAV)" Deep learning still not widely applied in Hazard and vulnerability mapping. The authors may mentioned the most common models in the literature instead like physical or datamining statistical models.

L210 to 221 P 10: too general information, please discuss in more details the suscep-tibility modeling like in light of using machine learning (classification/clustering..etc) or physical model of slope structure analysis.

L275 P 17: "QuantiïňĄcation of this value has yet to be made, but calculations.. Lombardia Region, Italy, alone." Please extend this paragraph by mentioning some details or statistics.

L285 to L315 P 18: Can we assume that, the mentioned limitations, were the reason behind the scare mentioned in L28,29 P2 " EU countries are aligning and serving INSPIRE data at a slow pace...are available across Europe"?

L323, 324 L19: " However, in current geological assessments, expert judgment is still widely applied (e.g., Association of Professional Engineers and Geoscientists of British Columbia, 2010)," Please add recent references to support this statement.

Specific comments: L55 to L60 P3: Not clear, please re-write. L125 P3: "in geohazard mapping to produce landslide susceptibility maps (Jackson Jr et al., 2008)" Can you add more recent studies. Figure 2. Please mention one study for each sub-category Figure 3 and 5. . Please use multiple layout as the figure is not readable on A4 paper mode.