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Reflection on our practice of heterogeneous data management at the era of artificial intelligence: ZAEU as a case study

Inter et transdisciplinaire

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The comprehension and application of open science principles vary widely among scientific communities.

1. Context

In France, the Law for a Digital Republic (2016) states on open data requisites, and on the provision and access to data and knowledge. It applies to data from governmental agencies (including public research organizations that may have some economic, social, health or environmental interest), while protecting personal data (General Data Protection Regulation), endangered species and ethics.

More generally, see the UNESCO Recommendation on Open science, re-users should gain access to scientific publications, open research data, open educational resources, open-source software, open hardware.

Today, more and more web portals provide data visualization and some data processing for a direct reuse. Some of them propose initiatives such as the Earthdata Developer Portal and target developer groups to foster innovation. Corresponding application program interfaces (API) search, access, and interoperate within data portals so as to propose new products.

2. Discussion

The ZAEU is one of the nodes of the French Long Term Socio Ecological Research (LTSER) network, namely Réseau des Zones Ateliers. This research infrastructure accompanies the ZAEU in the deposit of its datasets in the data.indores data warehouse and in a geocatalog. It also provides guidance for the data management plan.

Continuous improvement involves a mindset of ongoing reflection, evaluation, and adjustment. As discussed in this contribution a reflective approach to our practices is necessary and there is room for upgrading our collective management of scientific data.

In the era of artificial intelligence, ensuring interoperability is essential for deploying digital twins that mix heterogeneous data. Nonetheless it is imperative to thoroughly document the data content to maintain human interpretability. In other words, the documentation of the data should be considered at least if not more valuable than the data.

In particular, the questions about Transparency, Robustness, Uncertainty management, Sustainability, and Transdisciplinarity (TRUST) could be studied by means of post-normal science approaches to foster open science. Note that uncertainties can be seen as opportunities. At our modest level, datasets we produce follow FAIR principles and address some of the TRUST aspects.

3. Conclusion

Thinking in AI, “Nor should we mix up apples and pears” is turning an old-fashioned expression. Mixing social-ecological-economic data is a must that we should collectively address to foster new research and innovation in the context of global changes.