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# Interoperability: a new horizon for data sharing in Humanities and Social Sciences. The input of three digital services developed by Huma-Num

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In the field of Humanities and Social Sciences, the production of digital or scanned data has increased considerably in recent years. These data, which are usually very expensive to produce, are often lost at the end of the project. They are therefore rarely reused, due to a lack of financial, human and technical resources of the communities that produced them.

The TGIR Huma-Num, whose mission is to facilitate the digital turn in Humanities and Social Sciences research, offers services dedicated to the production and reuse of data. These services aim at avoiding loss and facilitating the re-use of scientific data. To do this, Huma-Num supports research teams throughout their digital projects to allow the sharing, reuse and preservation of data thanks to a chain of devices focused on interoperability.

The aim is to foster the exchange and dissemination of metadata, but also of data itself via standardized tools and lasting, open formats. These tools developed by Huma-Num are all based on Semantic Web technologies, mainly for their auto-descriptive features and for the enrichment opportunities they enable. Other interoperability technologies complement them, such as the OAI-PMH. Interoperability is used internally to allow Huma-Num services to communicate with one another and externally to let users plug their tools into Huma-Num services.

Another important point is to make the storage of data independent of the device used to disseminate the data.

This poster will present three services designed and developed by Huma-Num to process, store and display research data while preparing them for re-use and long-term preservation.

These services embrace the research data life cycle and are designed to meet the needs arising therefrom:

- SHARE data and metadata, using interoperable technologies, with NAKALA. Another feature is the possibility to make DATA CITEABLE with PIDs;
- SHOW and DISPLAY the data with NAKALONA, using the CMS Omeka allowing customised editorialization of data stored in Nakala (e.g. virtual exhibitions) benefiting from the features of this CMS such as its search engine and extended OAI-PMH feeds which facilitate interoperability;
- TAG and PUSH data through ISIDORE, enriching and interconnecting them to ensure better visibility.

These three complementary services thus constitute a coherent chain of research data tools. While they interact smoothly with each other, they are also open to external tools using the same technologies. In fact each tool, considered individually, is not groundbreaking, but we consider that the combination of these tools is the key to address needs and to prepare the long term preservation of scientific data.

The scientific objective is to promote data sharing so that other researchers, communities, or disciplines, can reuse them, including from an interdisciplinary perspective and in different ways. A map, for example, may become a scientific object that reflects both the point of view of a geographer and that of a historian. More generally, the principles and methods of the Semantic Web (RDF, SPARQL, SKOS, OWL) on which these services rely enable data to be documented or re-documented for various uses without confining them to inaccessible silos.

The second objective is to prevent the loss of data by preparing their long-term preservation. Documenting the use of appropriate formats, which are the basis of data interoperability, greatly facilitates the archiving process.

Through these services, the TGIR Huma-Num is developing solutions based on digital technologies and, in particular, those of the Semantic Web, to meet the needs of researchers and scientific communities, and make new research in the field of Humanities and Social Sciences possible.