ICS-TCS Communication

The main requirements of each TCS were collected during the EPOS Preparatory Phase. An additional requirements elicitation process during the initial phase of the EPOS IP project has taken place, in order to ensure that the requirements from the TCS communities are properly taken into account. Interactions between ICS and TCS are handled through cyclic teleconferences (every 3 - 6 months) and through meetings with each TCS. EPOS meetings and assemblies are also exploited to discuss ICT issues, plan the work and improve synergies.

Work-cycle
Based on the information collected during the requirements elicitation process, the ICS development team will prepare a suggestion for the harmonization process between the TCSs. Both the requirements elicitation process as well as the harmonization of the requirements between the various TCSs, is taking place in an iterative manner allowing both ICS developing team and TCS communities to contribute both in the preparation phase but also later in the implementation and validation phase of this information.

ICS-TCS common work
The joint work is carried out in the "interoperability layer", a software/technical layer to enable communication among ICS and TCS. Once the TCS-ICS communication is established, data, metadata and services coming from the various communities must be managed.

This is accomplished in the ICS Central Hub (ICS-C) by means of a metadata catalogue, namely the facility which, together with system manager software, manages and orchestrates all resources required to satisfy a user request. By using metadata, the ICS-C can discover data requested by a user, gain access to them, send them to a processing facility (or move the computation to the data), and perform other complex tasks. The catalogue contains: (i) technical specifications to enable autonomic ICS access to TCS discovery and access services, (ii) metadata description of the digital object (DO) with direct link to DO, (iii) information about users, resources, software, and services other than data services (e.g. rock mechanics, geochemical analysis, visualization, processing).

In the roadmap to enable data integration and ICS-TCS communication, the following steps are required:

- metadata definition,
- web services/APIs definition,
- match and map with ICS
- harvesting from TCS

The EPOS catalogue, based on the CERIF model, differs from most metadata standards used by various scientific communities.

For this reason, EPOS ICS has sought to communicate to the TCSs the core elements of metadata required to facilitate the harvesting of metadata from TCS to ICS. The core elements are contained in the solo called - EPOS Metadata Baseline.

The EPOS baseline, presents a minimum set of common metadata elements required to operate the ICS taking into consideration the heterogeneity of the many TCSs involved in EPOS. It is possible to extend this baseline to accommodate extra metadata elements where it is deemed that those metadata elements are critical in describing and delivering the data services for any given community.

The process of converting (mapping & harvesting) metadata acquired from the EPOS TCS to CERIF will be done by EPOS WP07 &06 but in consultation with each TCS as to what metadata they have available and harvesting mechanisms.
The expectation is that the various TCS nodes will have APIs or other mechanisms to expose the metadata

describing the available DDSS in a TCS specific metadata standard that contains the elements outlined in the EPOS baseline documents better described in the following sections. It also requires ICS APIs (wrappers) or other to map and store this in the ICS metadata catalogue, CERIF. These TCS APIs and the corresponding ICS convertors collectively form the "interoperability layer" in EPOS, which is the link between the TCSs and the ICS.

The EPOS-Wiki harvesting page