

Conclusions and Future Work

The ENVRI Reference Model is a work in progress. Currently, attention is focused on three of the five ODP viewpoints: enterprise, information and computational. The remaining viewpoints of engineering and technology have been deferred to a later date.

Much work remains. Stronger correspondence between the three primary viewpoints is necessary to ensure that the three sub-models are synchronised in concept and execution. Further refactoring of individual components and further development of individual elements is to be expected as well. Further development of the presentation of the model is also essential, in order to both improve clarity to readers not expert in ODP and in order to promote a coherent position. In the immediate next step, the following tasks are planned:

Validation

The reference model will be validated from several aspects.

1. Usability. The users from different RIs will be invited to use the reference model to describe the research infrastructures in the ENVRI. The feedback will be collected and analysed to improve the definition of the reference model.
2. Interoperability. The descriptions of different RIs will be compared and check the commonality of the operations, and validate the effectiveness of the reference model in realizing the interoperability between RIs. The development of the use case in the work package 4 will also be used as the scenario to test the reference model.
3. Application. The linking model and the reference model will be tested in the application planning systems to check the data, resource and infrastructure interoperability

Semantic linking model

The reference model will be used as an important input for the development of semantic linking model among the reference model, data and infrastructure. The linking model provides an information framework to glue different information models of resources and data. The RM couples the semantic description of architectures and provides semantic interoperability between model descriptions. It needs to address fault tolerance, optimization and scheduling of linked resources, while making a trade-off between fuzzy logic and full information. The linking model is part of the development effort of the reference model.

The model is structured to support the semantic interoperability between data (data objects, metadata and annotations) which is provided by semantic mediation (or mapping, or translation) between descriptions of data (units, parameter, methods and others) and by semantic mediation of nominal and ordinal values, and/or taxonomies.

The linking model will take different aspects into considerations:

- The application (such as workflow) aspect captures the main characteristics of the application supported by the research infrastructure, including issues such as main flow patterns, quality of services, security and policies in user communities, and linking them to the descriptions of the data and infrastructures.
- The computing and data aspect focuses on operations and different data and meta data standards at different phase of data evolution (raw data, transfer, calibration, fusion etc.) and model them with linking of the data storing, accessing, delivery and etc. on (virtualized) e-Infrastructure.
- The Infrastructure aspect links the semantic model of the different layers of components in the physical infrastructure such as network elements and topologies, and also the monitoring information of the runtime status of the infrastructure. This part will enable the constraint solving of quality constraints to reserve and allocating resources for high level applications (processes).