

EPOS WP 3 – EPOS tool development

Lead: EPFL

Non-technical IS methodology and EPOS footprinter 1

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Summary

This deliverable is compiled to answer to the task 3.3 of WP 3 – EPOS tool development. The deliverable includes a description of the process for investigating and identifying industrial symbiosis (IS) opportunities for industries.

The deliverable is divided into three parts; the first part outlines the process of identifying and realising any IS opportunities in a manual way, the second part defines how this manual process can be translated into a functionality of the EPOS toolbox and, the third part concerns the details of the EPOS footprinter.

To include the non-technical aspects of IS into an automated toolbox, support from the field of artificial intelligence is acquired. Hence, a proposal to use 'ontologies' is made in this deliverable. Ontology describes a hierarchy of concepts related by subsumption relationships, therefore, matches between different resources can be made based on the inferences drawn on their properties, rather than the similarity of the resource name. An inference engine will prompt the user interface to request for complementary data when the information provided in the ontology is not enough. The collection of these tools and methods, along with osmose, used for optimisation, will formulate the EPOS toolbox; able to not only perform an intra-site optimisation, but also able to identify symbiosis opportunities that may help in inter-site optimisation.

The EPOS footprinter provides a user-friendly interface, which will enable the user to select various KPIs of interest, as well as specify constraints and objective functions for the optimisation. Also, the footprinter displays the results of optimisation and streams match-making in a concise and meaningful form for the user. The LESTS aspects of IS cases, will be calculated based on the responses of the user to a limited set of questions already fed into the system. The EPOS footprinter will also include a pentagon for each IS case, that will be presented with the rest of the results to the user. All this is done to facilitate the handling of huge amounts of information in a meaningful and user-friendly manner, ultimately helping in the decision making process.