H2020 DTOceanPlus project: publication of 2 key deliverables

This project aims to develop and test a software suite of advanced design tools for tidal and wave systems. The mid-project is marked by the release of 2 key deliverables: the first alpha version of a module of the suite and a framework to standardise the data formats describing an ocean energy systems design.

First alpha version of a module of DTOceanPlus software suite

The module will provide the user with a set of relevant metrics and assessments pertinent to the performance of the ocean energy system in terms of energy production, power quality, and efficiency. Moreover, a set of alternative metrics (dimensional parameters) have been included, representing the performances of the systems against a set of technical parameters, the rated power, wetted surface and mass of the prime mover, and the cable lengths.

The code has been implemented in Python 3 but is also provided with an Application Programming Interface (API) in order to interact and communicate with the other modules of the DTOcean+ platform. A graphical user interface will be developed consistently with the other modules, allowing the user to interact easily with the System Performance and Energy Yield module, inputting data and visualising results.

This deliverable serves as the technical manual of the alpha version of the System Performance and Energy Yield module of the Assessment Design Tools. It includes all the data requirements, main functions, interfaces and all the pertinent technical details. This document summarises both the functionalities as well as the more technical aspects of the code implemented.

Deliverable D6.2 - Performance and Energy Yield Tools - alpha version

A framework to standardise the data formats of ocean energy systems design

There is currently no standard method of describing the key characteristics and attributes of Ocean energy technologies. Without such a standard, it can be difficult, if not impossible, to objectively analyse innovative technologies and compare competing technologies. The ambition of the present framework is to standardise the data formats describing an ocean energy design so that it can be used as a common interchange language among different sector actors.

This deliverable fully describes the data used for a generic ocean energy system design in a structured manner. This has been done by means of the definition of a digital representation for the elements of the whole system at different levels of aggregation (i.e. array, devices, sub-systems, and components) and accounting for different levels of complexity of the project.

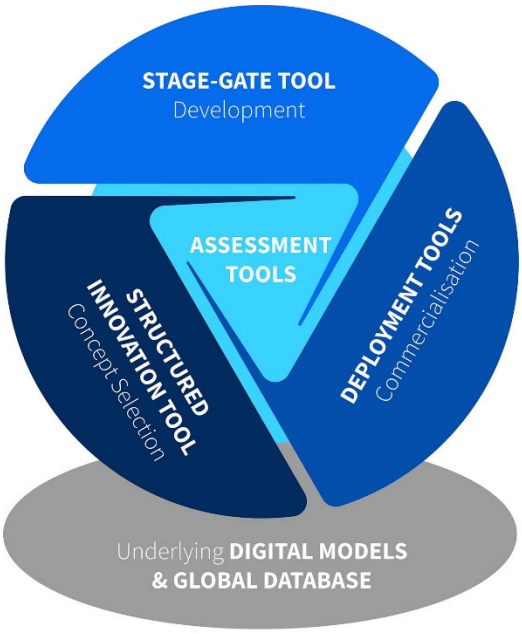
In order to fully capture the main aspects of an ocean energy system, the digital representation framework has accounted for:

- Elements of the technology design (physical domain), phases of the technology lifecycle (process domain) and constraints from the context (external environment);
- A vertical dimension, that describes a set of hierarchical connections among subsystems and components;
- A transversal dimension, accounting for the individual and specific components of the system.

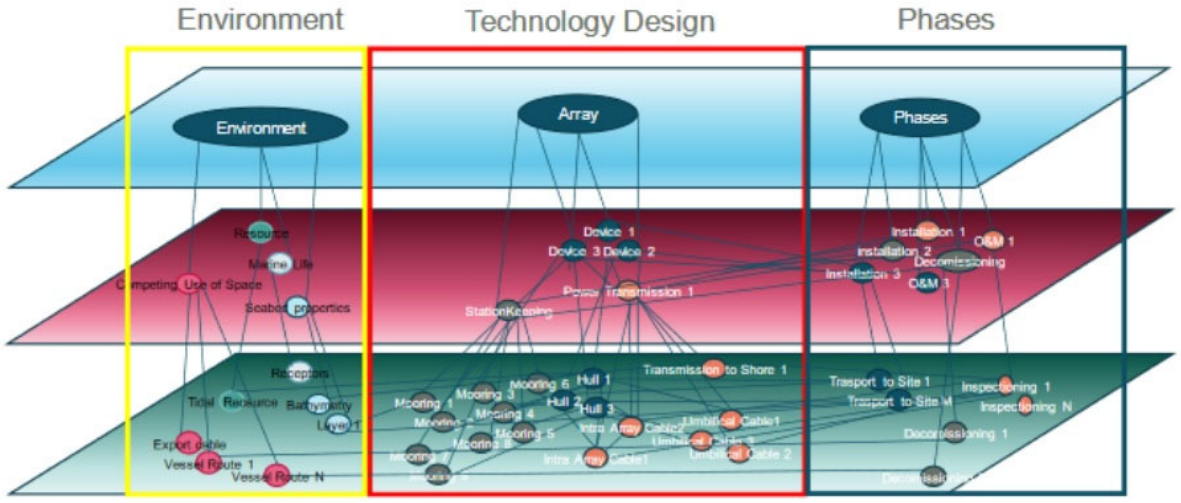
Deliverable D7.1 - Standard Data Formats of Ocean Energy Systems

Contact: France Energies Marines - contact@ite-fem.org - +33 (0)2 98 49 98 69

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 785921



Tools of the future DTOcean+ 1.0 software suite
(© Virtualys / DTOceanPlus project)



Incomplete example of the digital representation of an ocean energy system
(©DTOceanPlus project)

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 785921

DTOceanPlus in short

Subject: development and testing of a suite of digital tools for the design of tidal and wave systems

Duration: 3 years (May 2018 to April 2021)

Budget: €8 million

Funding: EU Research and Innovation Programme H2020 (Grant Agreement No 785921)

Leader: Tecnalia (Spain)

Partners:

Learn more at dtoceanplus.eu

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 785921