OBELICS is a 3-year Horizon 2020 project addressing the topic ‘Multi-level modelling and testing of electric vehicles and their components.’
Within OBELICS, testing efforts will be transferred from the right arm of the V to the left in order to reduce the overall development time and effort. Since very detailed models with high accuracy are often slow in computational speed, it is important to reduce the model complexity for certain simulation or testing tasks in an easy and efficient way, where higher computational speed is required (e.g., real-time capability).

With a comprehensive ‘Frontloading’ approach based on iterative model-based design, development and testing - OBELICS enables engineers to readily understand design change impacts, validate and refine concepts at an early stage. Thus improving the performance, efficiency and safety, while reducing the time and efforts required for the EV development process.

The overall objective of OBELICS is to develop a systematic and comprehensive framework for the design, development and testing of advanced e-powertrains and EVs line-ups.

Following results are expected from OBELICS:
- Development of novel methodologies for specifying and analyzing requirements with new models and testing methods;
- Development of realistic use cases (four engineering domains) and metrics for guiding development of new tools for testing and modelling of electric/hybrid vehicles and components with a particular focus on battery, electric machine and inverter components;
- A complete simulation environment: tools (commercial or internal) that satisfy the modelling requirements and standards to share models and perform co-simulation for multi-physic modelling/scalable real-time models for batteries, inverters and e-motors;
- Development of new sets of generic methods, models and simulation tools (Generic interoperable simulation framework) efficiently supporting comprehensive EV design processes combining innovative powertrain architectures with relevantly impacting auxiliaries;
- Advanced methodologies and strategies for assessing functional safety, reliability and safety;
- Analysis of second life battery market, performances/aging and applications.

OBELICS will further optimize existing testing procedures, and present adapted and enhanced heterogeneous testing procedures to the international standardization community.