



DEFACTO

**Battery DEsign and manuFACTuring Optimization through
multiphysic modelling**



This Project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement N. 875247



ABOUT THE PROJECT

DEFACTO's main objective is to develop a multiphysic and multiscale modelling tool to improve the understanding of cell material behaviour and cell manufacturing process, and to reduce the time and economic resources for the market uptake of cell innovations. This approach will allow developing new high capacity and high voltage Li-ion cell generation 3b battery.

The validated computational simulations will be a powerful tool to:

- (I) Tailor new optimum cell designs.
- (II) Optimize manufacturing steps of electrode processing and electrolyte filling.
- (III) Shape new generation 3b materials.

Likewise, DEFACTO and the future developments of its technologies will contribute to strengthen an innovative, sustainable and competitive battery industry, positioning Europe as the forefront of this sector.

OBJECTIVES

1. To generate an integrated software tool which achieves the maximum accuracy and robustness to describe cell behavior at reasonable computing costs.
2. Optimize the design of a cell by including all relevant design variables and analyzing different physical domains.
3. Reduce the number of experiments by a factor of 3 in the cell development phase.
4. Contribute to the standardization of measurement procedures
5. Creation of New Market opportunities and improvement of industry competitiveness

IMPACTS



DEFACTO will ensure maximum accuracy in cell modeling at reasonable computing costs.

-30%

DEFACTO will lower the development time and cost for battery cell by 30%.



DEFACTO is expected to lower the number of experiments dedicated for cell design and cell manufacturing optimization.

-20%

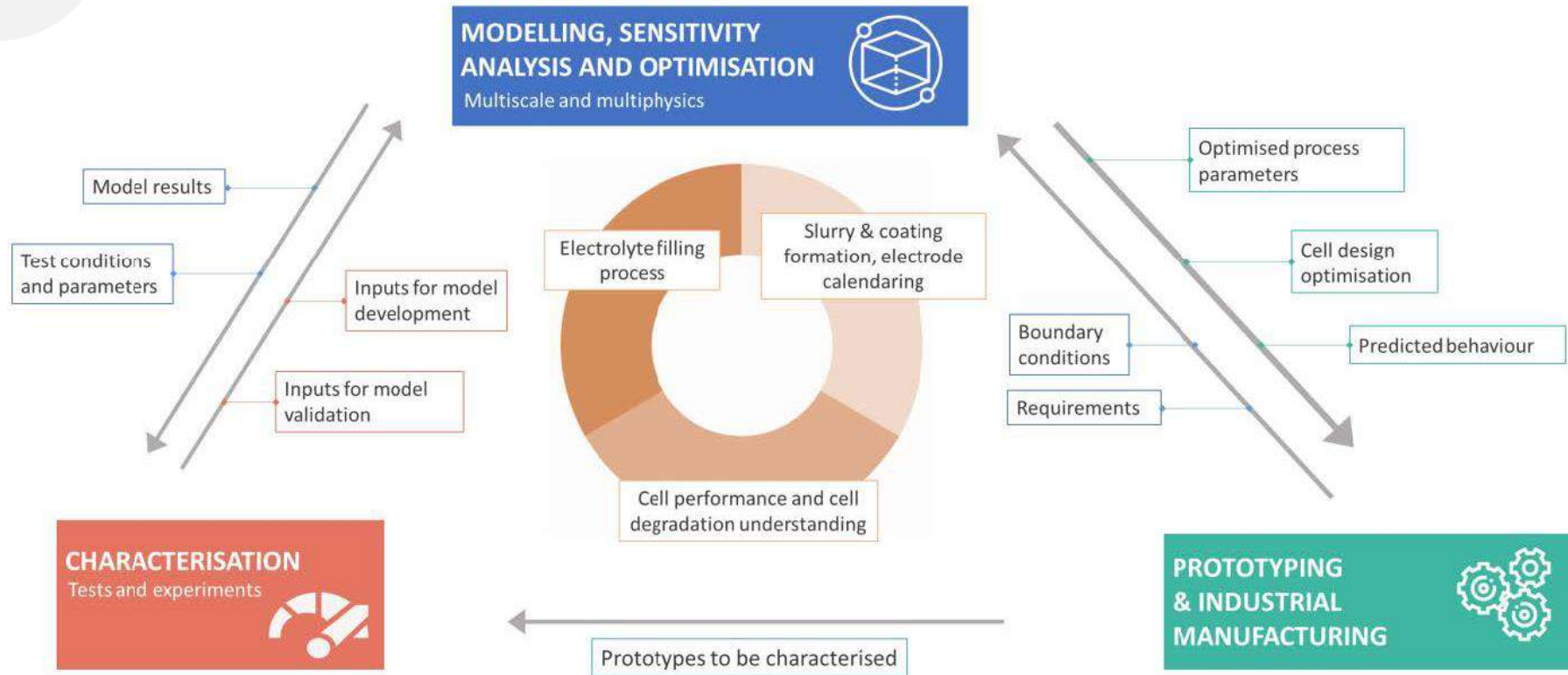
DEFACTO will reduce battery R&I cost by 20%.



DEFACTO will extend the battery lifetime and reduce the environmental impacts caused per battery produced.



METHODOLOGY



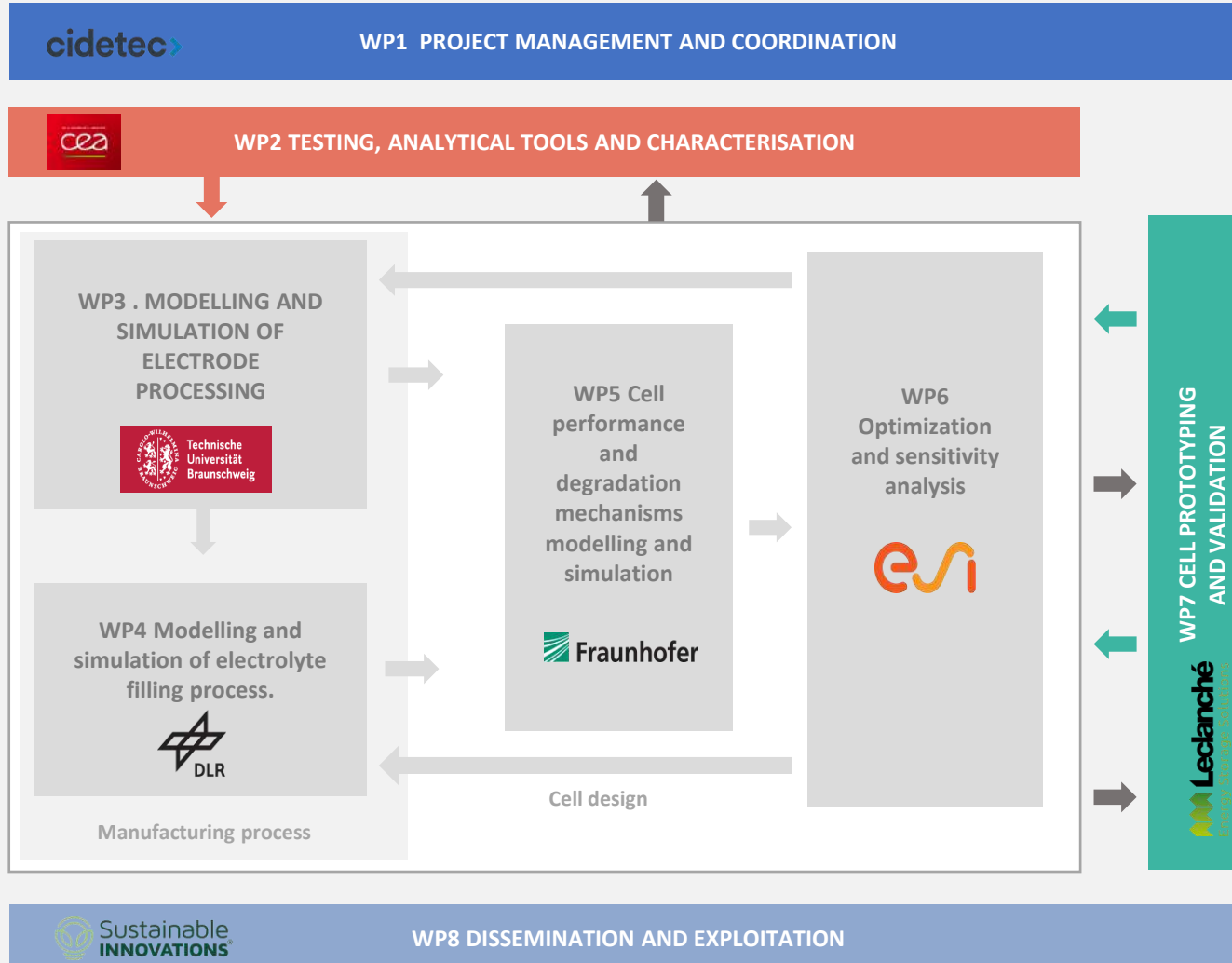
OUTPUTS

- New cell development protocols (cost and time saving) →
- Understanding of degradation mechanisms →
- New advanced characterisation techniques →
- Efficient simulation tools →
- Improved cell design →

BENEFICIARIES

- Cell manufacturing industry, OEMs
- Academia, cell manufacturing industry
- Research centres, universities, cell manufacturers
- Cell manufacturers, specially SMEs
- Cell manufacturing industry, OEMs

IMPLEMENTATION



CONSORTIUM



The DEFACTO consortium led by CIDETEC and formed by CEA, CERTH, DLR, Fraunhofer, Esi Group, UNE, Irizar e-mobility, Leclanché, Technische Universität Braunschweig, Universidad Politécnica de Madrid, Avesta Battery & Energy Engineering, and Sustainable Innovations.

Spain

France

Greece

Germany

Belgium



DEFAC TO

Thank you for your attention