DEFACTO

Battery DEsign and manuFACTuring Optimization through multiphysic modelling

Horizon 2020
European Union Funding
for Research & Innovation

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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.

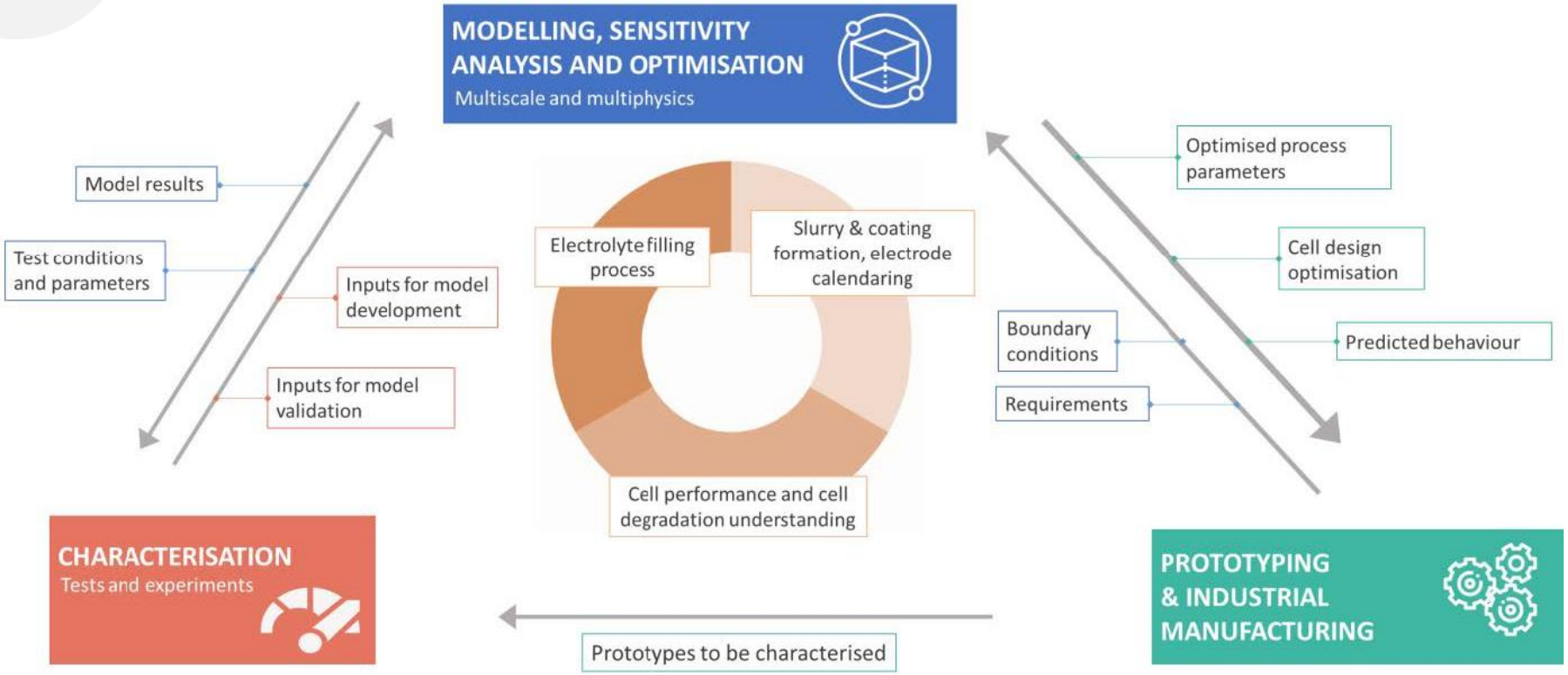
-30% DEFACTO will lower the development time and cost for battery cell by 30%.

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%.

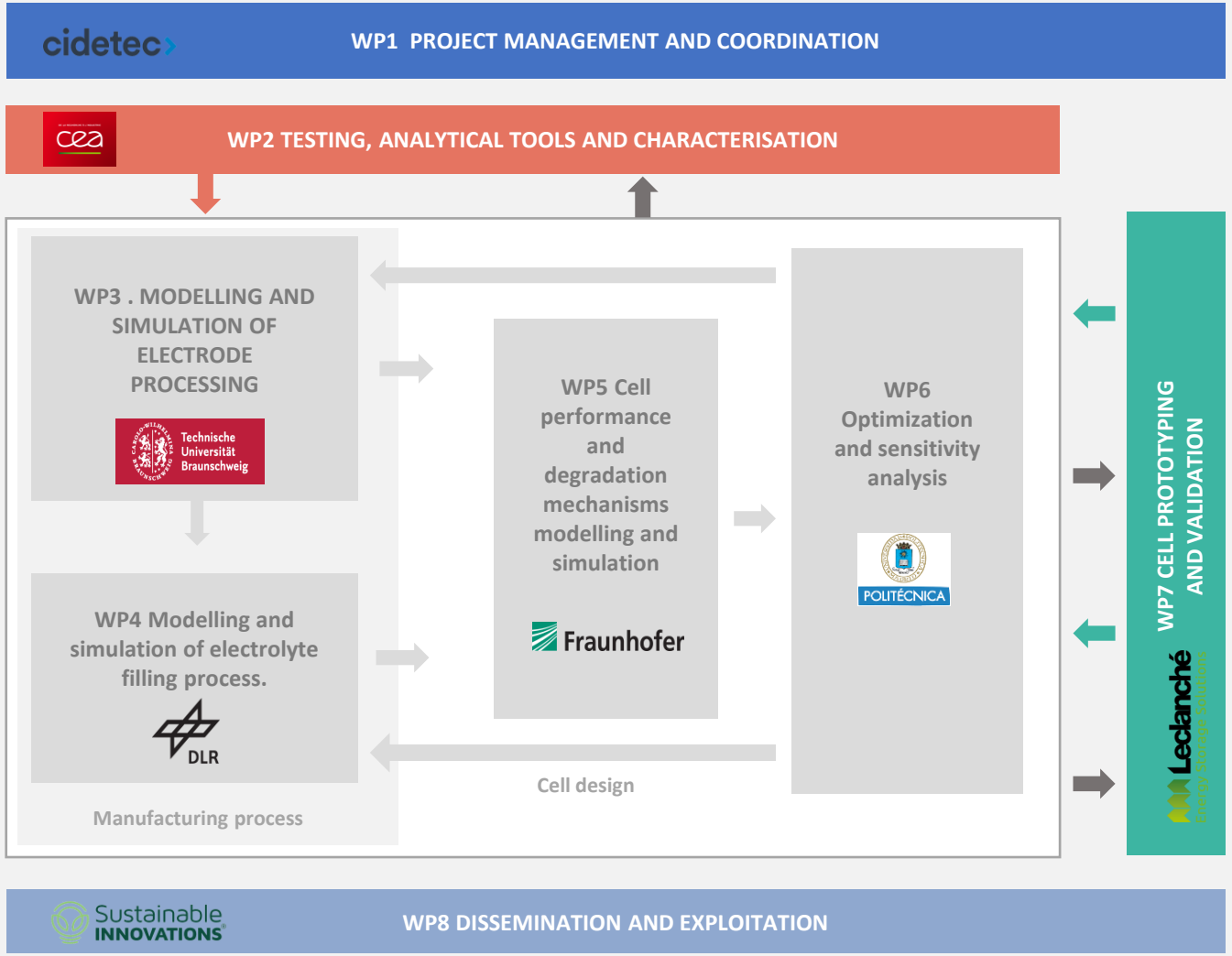
DEFACTO will extend the battery lifetime and reduce the environmental impacts caused per battery produced.

METHODOLOGY



OUTPUTS	BENEFICIARIES
• New cell development protocols (cost and time saving)	→ Cell manufacturing industry, OEMs
• Understanding of degradation mechanisms	→ Academia, cell manufacturing industry
• New advanced characterisation techniques	→ Research centres, universities, cell manufacturers
• Efficient simulation tools	→ Cell manufacturers, specially SMEs
• Improved cell design	→ Cell manufacturing industry, OEMs

IMPLEMENTATION



CONSORTIUM

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

- Spain
- France
- Greece
- Germany
- Belgium

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Thank you for your attention