TALISSMAN

Technologies for Advanced LIthium-Sulfur batteries toward Safe and Sustainable Mobility Applications.

Funded by
the European Union

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TALISSMAN is a Horizon Europe project which seeks to develop safe, high-performance, and sustainable lithium-sulphur batteries for aerospace and electromobility applications. By advancing gelled and solid-state battery concepts, TALISSMAN addresses key technical barriers to industrialisation.

The project integrates eco-design, circularity, and recyclability principles, while ensuring compatibility with existing production lines. A strong focus on stakeholder engagement and open science will support market uptake and contribute to Europe's battery technology leadership.

IMPACTS

Improved Technical Performance:

TALISSMAN will deliver next-gen batteries with energy densities up to 550 Wh/kg (watt-hours per kilogram), meaning more energy stored with less weight – a key enabler for high-efficiency aerospace and electric mobility applications.

Increased Safety:

By replacing flammable liquid electrolytes with quasi-solid and solid-state alternatives, and implementing robust interface protection, TALISSMAN significantly lowers the risk of thermal runaway and dendrite-induced failures.

Superior Cost-Effectiveness:

Thanks to low-cost, abundant materials like sulphur and carbon, combined with scalable, energy-dense designs, TALISSMAN aims to reduce battery costs below €75/kWh by 2030, enhancing competitiveness against conventional LIBs.

OBJECTIVES

- Safe and efficient 3D lithium-metal anodes.
- Advanced electrolytes for stable performance.
- High-performance sulphur cathodes.
- Understanding and preventing battery degradation process.
- Pilot-scale validation of battery prototypes.
- Sustainability and circularity by design.
- Industrial uptake and exploitation.

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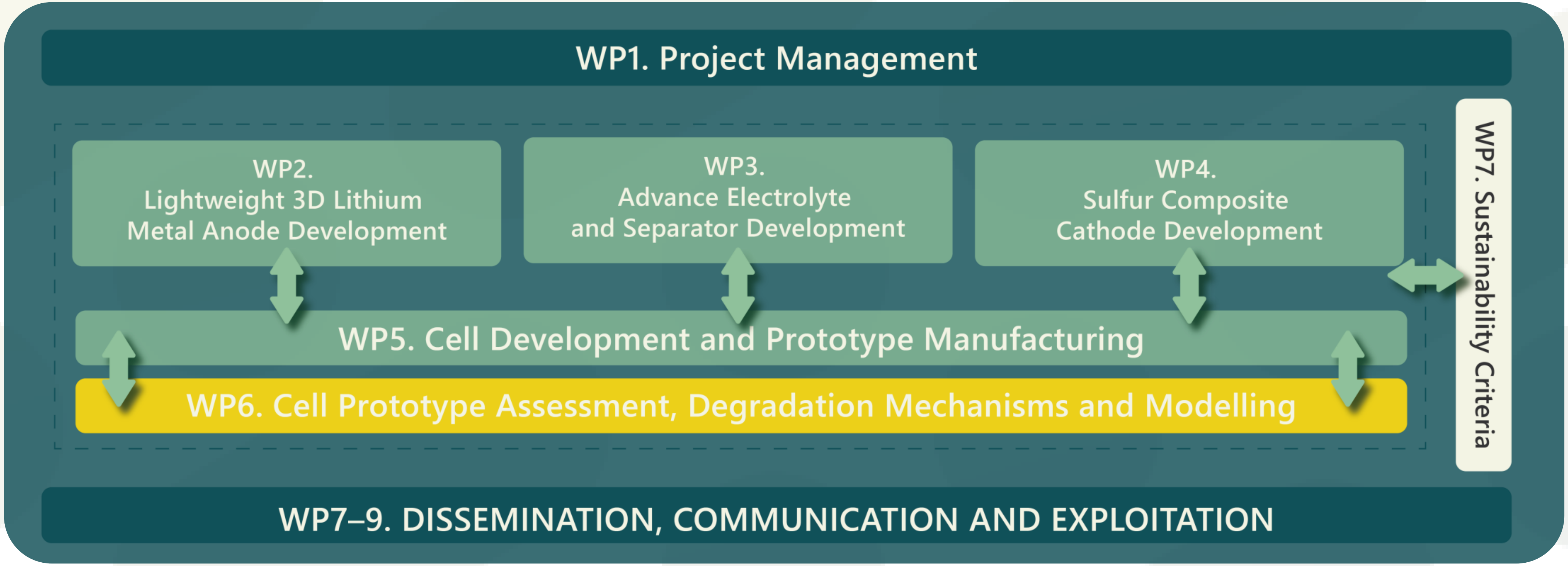
METHODOLOGY



PROJECT PARTNERS

SPAIN
FRANCE
GERMANY
ITALY

TALISSMAN (Technologies for Advanced Lithium-Sulfur batteries toward Safe and Sustainable Mobility Applications) is led by CIDETEC Energy Storage and formed by Airbus Operations S.L., ARKEMA France SA, Fraunhofer Gesellschaft, Justus-Liebig-Universität Giessen, Politecnico di Torino, SAFT, Sustainable Innovations Europe, and Tecnalia Research & Innovation

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