

TEMPÈST



Co-funded by the European Union under grant agreement 101103681. Views and opinions expressed are, however, those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them. This project also contributes to the objectives of the Batt4EU Partnership. Co-funded by UKRI – UK Research and Innovation under the UK government’s Horizon Europe, under grant agreements 10075481 and 10075485.



ABOUT US

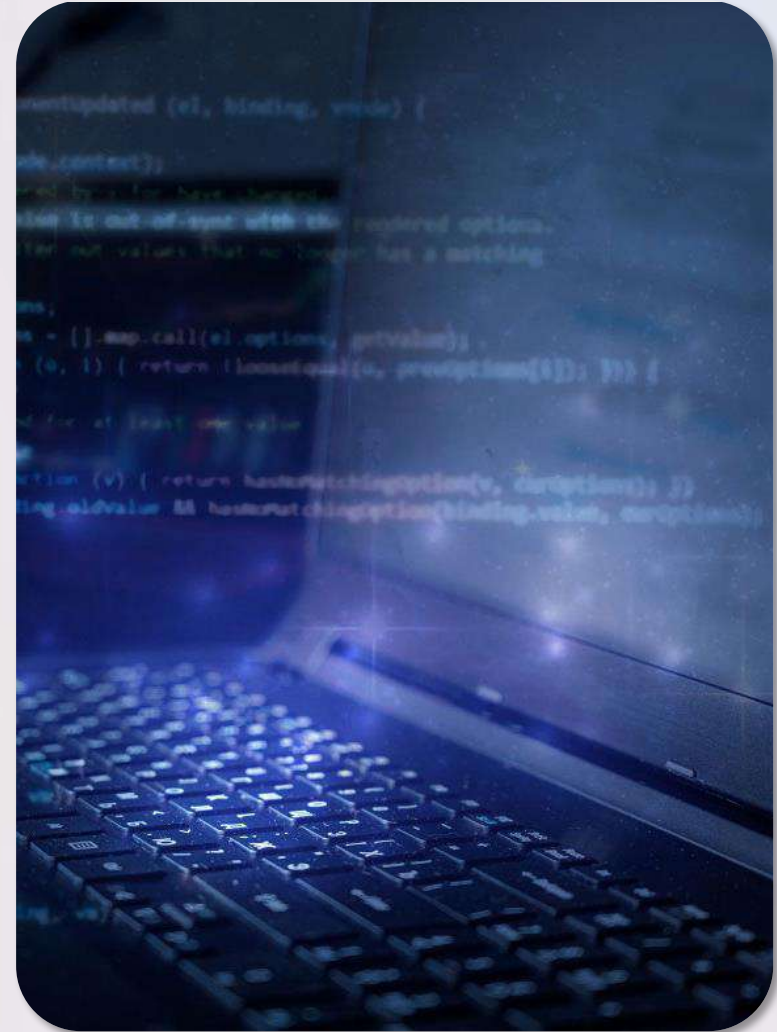


TEMPEST develops and matures a new generation of **safe-by-design, recyclable, high performance, and lightweight batteries** by providing a holistic approach to next-generation lithium battery technologies, evaluating solutions for batteries, which will **strengthen the overall positioning of Europe in the global batteries market**, and increase its independence on outside markets.

TEMPEST brings **advanced, module-free battery systems, optimised using artificial intelligence algorithms** through three different demonstrator battery types (compact, large-scale, and stationary).

OBJECTIVES

- Develop next generation cell technologies for multiple demonstrators and applications.
- Develop new architectures and designs for improved safety, thermal management, and performance.
- Improve the circularity of batteries through improved design and recycling methods.
- Develop and implement new models for the optimisation of batteries.
- Develop sustainable value chains and exploitation strategies.



TECHNOLOGICAL IMPACTS



+70%

**BATTERIES
RECYCLABILITY**

+30%

**OPTIMISATION OF
COSTS AND
MANUFACTURING**

+15%

**BATTERIES
PERFORMANCE**

-15%

**BATTERIES
WEIGHT**

ENVIRONMENTAL BENEFITS



- Reduction of greenhouse and aerosol production by 62%



- Reduction of energy loss and range increasing up to 52%



- Up to 78.7 tons CO₂ removed per battery pack and year



- Reduction of energy loss and range increase of up to 57%



- Reduction of overall energy load up to 72%



TECHNOLOGY



PERFORMANCE

- Cell-to-pack architectures
- Next-Gen Lithium cells & Solid State cells



SAFETY

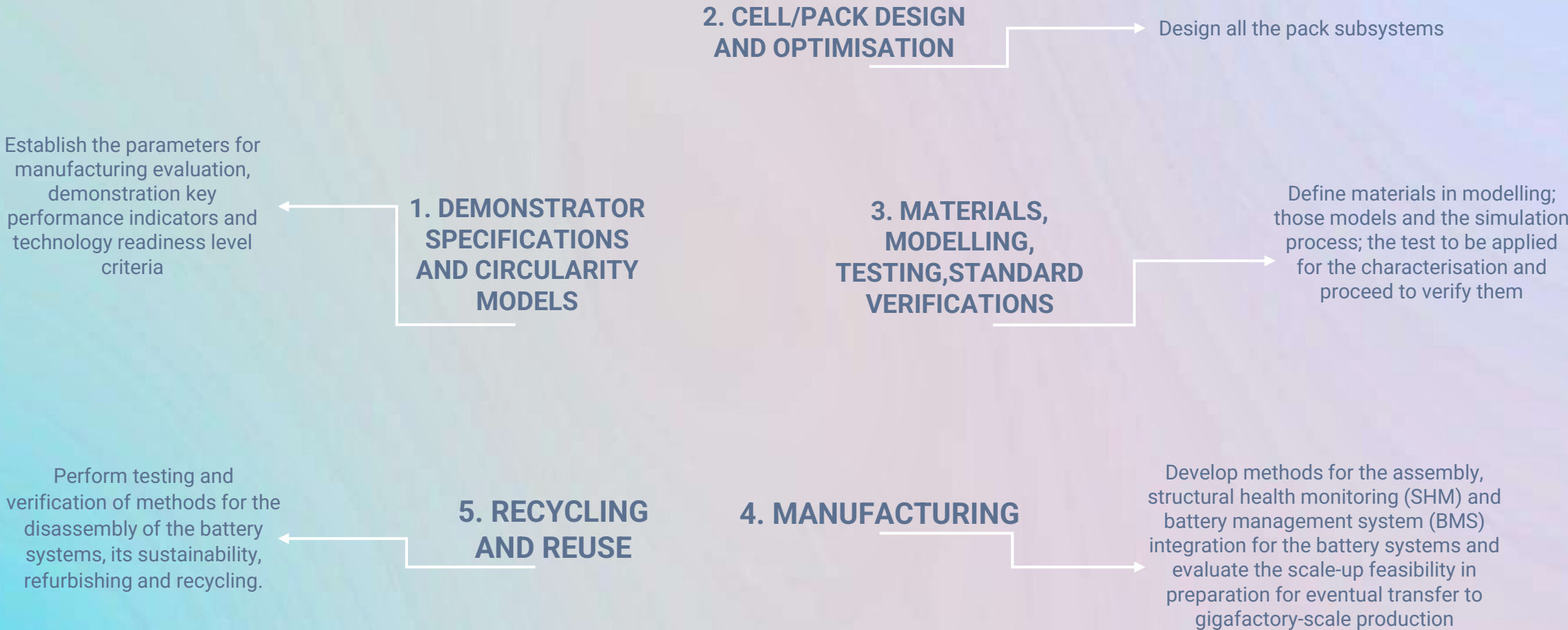
- Guided-wave Structural Health Monitoring for defect detection.
- Flame retardant/resistant materials & coatings.
- New thermal management techniques and Battery Management Systems.
- Impact resistant all-composite housings.



SUSTAINABILITY

- Reversible joining to facilitate repair and separation of bonded components.
- H₂-based recycling methods for extracting, recovering and transforming the components of the cells.
- Digital tools for develop synergistic gains in performance and efficiency

IMPLEMENTATION



CONSORTIUM



GET CONNECTED



TWITTER

@TempestBattery



LINKEDIN

Tempest Project



WEBSITE

www.tempestproject.eu

TEMPÈST



Co-funded by the European Union under grant agreement 101103681. Views and opinions expressed are, however, those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them. This project also contributes to the objectives of the Batt4EU Partnership. Co-funded by UKRI – UK Research and Innovation under the UK government’s Horizon Europe, under grant agreements 10075481 and 10075485.

