Recycling of Lithium from Secondary Raw Materials and Further

Lithium-relief.eu

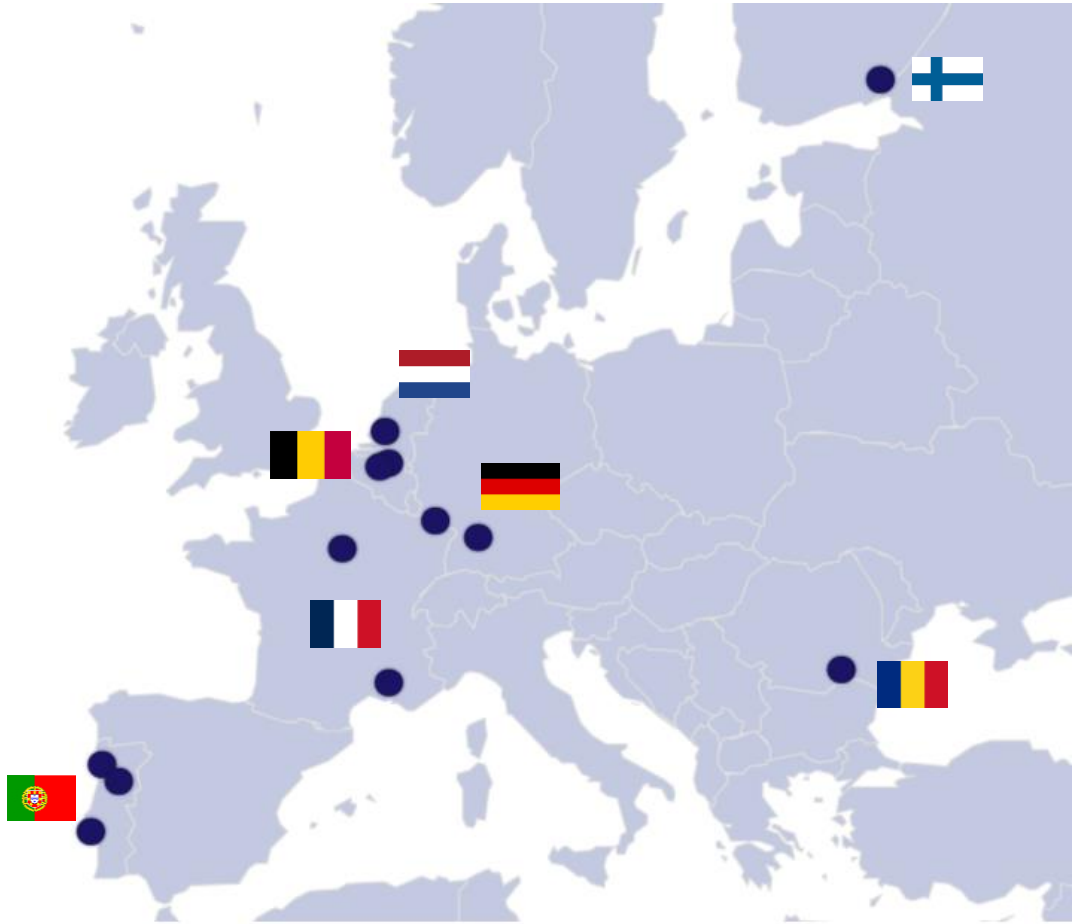
Gabriel Hidalgo

Recycling Unit - Avesta Battery & Energy Engineering

Funded by the European Union

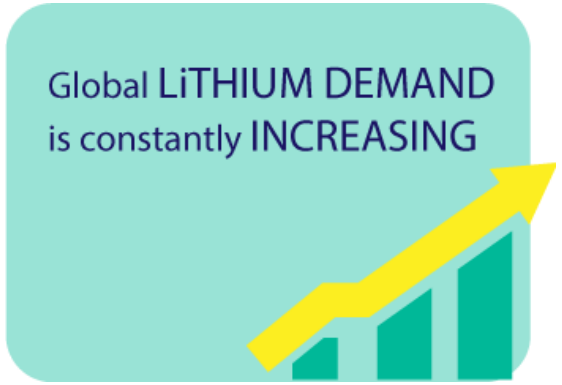
Main figures of the project

- Duration: 3 years (July 2022)
- Budget : 6 Mio €
- 9 Scientific Work Packages
- 12 Partners 7 countries



Call: HORIZON-CL5-2021-D2-01
Type of Action: HORIZON-RIA

About the project



Innovative **recycling** – Give **New Life** to **Previously Unrecovered Li sources.**

What is RELiEF aiming for?

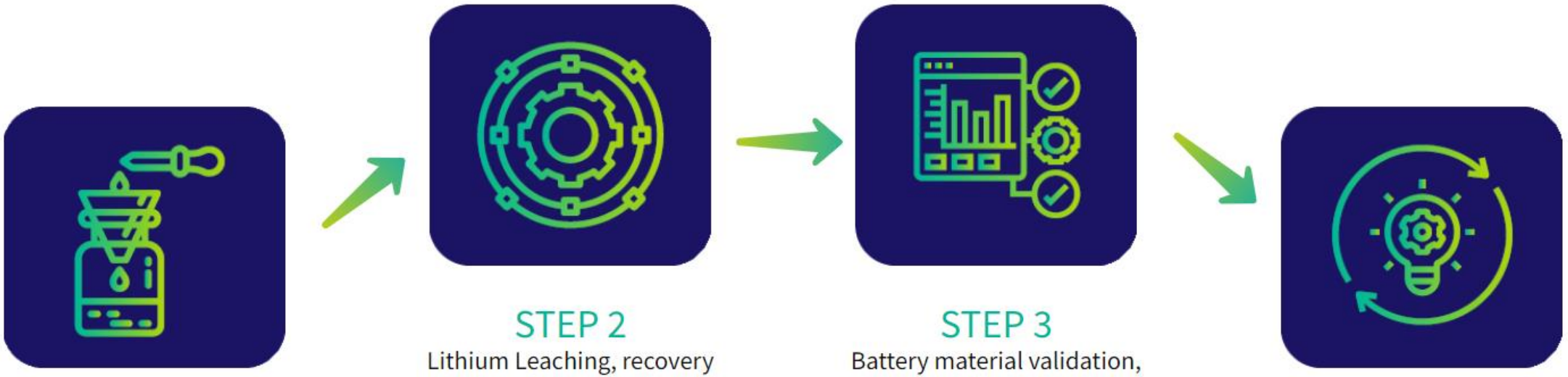
- Recover Li from potential **secondary sources** in order to **reduce unrecovered Li** from its waste generation (~ 27%).
- Reduce **Li waste** and **transform** recycled Li into high value **battery-grade material**.
- Establish an integrated Li **recycling facility** with continuous processing to produce battery materials.
- Contribute to the **decrease** the **dependency** of the **EU** on imported **battery** chemicals and raw **materials**.

Goal and Objectives

Reduce Li **waste** by more than 70% employing **unused** secondary Li **sources**. **Improve** Li metal circular **value chain** by developing a **continuous** battery material **recovery process**.

1. Develop safe and efficient **pre-processing** unit operations for solid input materials.
2. Ensure **selective** and **high rate** of Li leaching.
3. Recover Li **selectively** from the **liquid stream**.
4. Development of **high purity** Li **derivative** recovery.
5. Recover functional current and next generation **battery grade material** (e.g., LFP, Li-M anode).
6. Development of continuous and **flexible flowsheet** and demonstration at **TRL 5**.
7. Development of a new **business model** to ensure the economic **competitiveness** of the process.

Global Approach



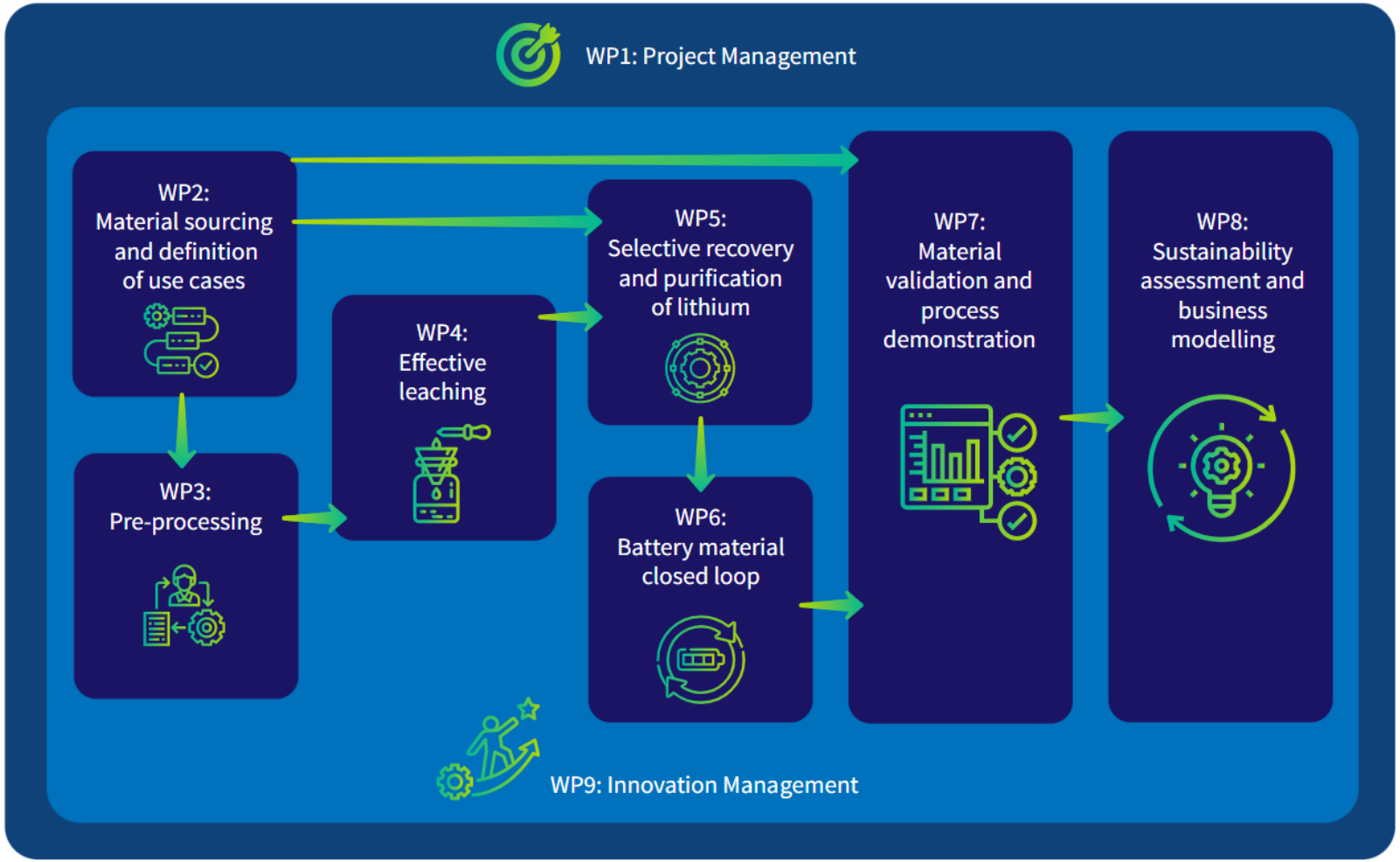
STEP 1
Sampling, extraction and material characterisation

STEP 2
Lithium Leaching, recovery and battery material synthesis

STEP 3
Battery material validation, process modelling and demonstration

STEP 4
Sustainable business modelling

Technical Approach



Expected results

- **Validation** and **demonstration** of recycling of Li from secondary raw materials.
- **Development** of continuous and flexible **process flow** for battery materials processing at industrial **relevant environment**.
- **Develop** and adapt new **business model** to EU industry.
- LCA and all other necessary assessments of project impact to **show feasibility** and economic, environmental, technological and societal sustainability of the **innovations**.
- A **roadmap** towards **EU battery circularity**, making optimal use of SRM

Thank you for your attention!