

# BATTERIES IN WALLONIA :

*At the Heart of  
Technological Evolution*

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# INTRODUCTION

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Europe's commitment to achieving carbon neutrality by 2050 necessitates significant resources, especially in the supply of essential metals such as lithium, cobalt, manganese, and nickel. These metals are foundational to advancements in green energy and transportation technologies. Within the framework of the Circular Economy, it is critical to enhance awareness, coordination, and innovation in the production of these materials to effectively combat climate change.

This brochure provides an overview of the battery value chain ecosystem. We share the barriers and levers we have identified in five specific battery-related areas. Finally, we highlight the main Walloon players and their contributions in this field.

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Walloon players active in the battery value chain.

Walloon players active in regional and European R&D projects.

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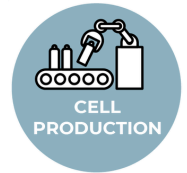
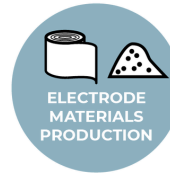
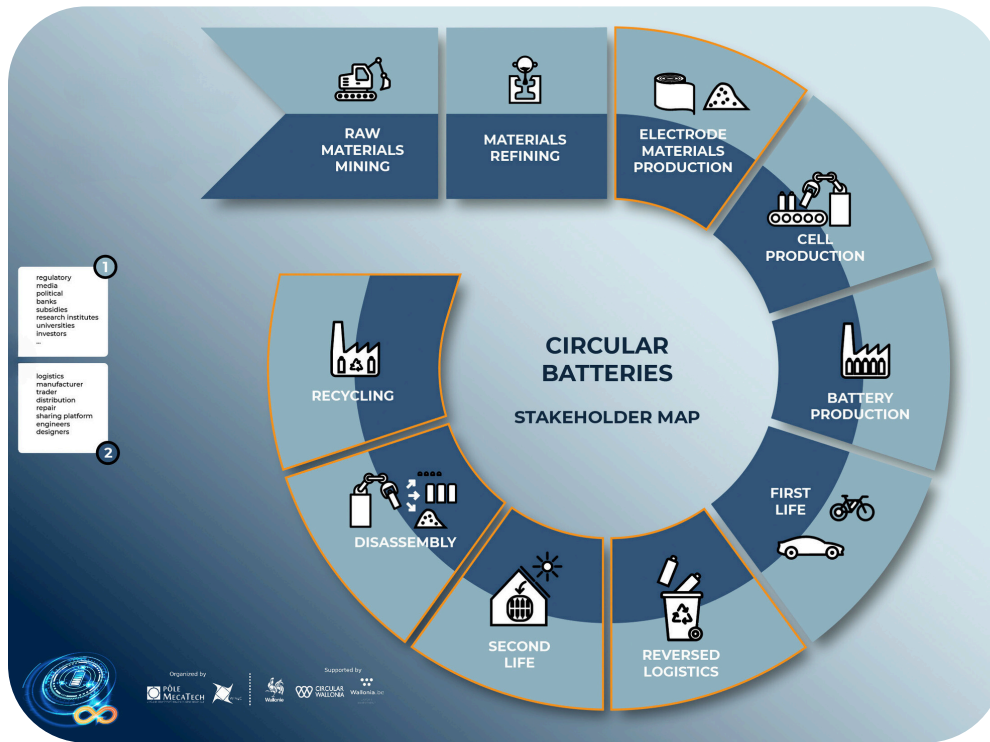
Investment projects selected to strengthen the regional battery value chain.

Strategic Innovation Initiative in relation with Batteries value chain : WIN4C.

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# ECOSYSTEM

## Wallonia and surrounding regions



WALLOON STAKEHOLDERS

Logos for GeMMe and LIÈGE université.

Logos for LIÈGE université and GeMMe.

A collection of logos including AGC, nanocyl, Mergent, MEGATECH, CIENTEXBIEL, MateriaNova, CRM group, Cenero, Greenmat, Wallonia.be, AGORIA, ICS, LUCL, and LIÈGE université.

Logos for innovation forward and AGC.

INTERNATIONAL CONTACTS

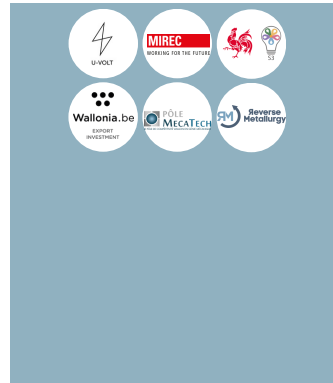
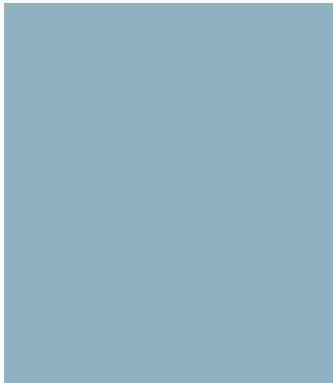
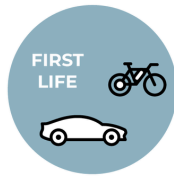
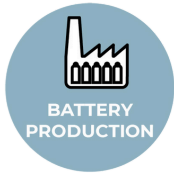
Logo for InsPyrò.

A collection of logos including orano, InsPyrò, BEPA, umicore, NEDERLAND CIRCULAIRE HOTSPOT, team², and BEPA.

A large collection of international logos including FINNOU:OZE, WWU, VUB, CNRS, INP UGA, LUX-INNOVATION, SOLVAY, NEDERLAND CIRCULAIRE HOTSPOT, LIST, RWTH AACHEN UNIVERSITÄT, CIRCUIT POL, team², INM, LePMI, Dow, BEPA, umicore, NEDERLAND CIRCULAIRE HOTSPOT, KU LEUVEN, and Imec.

A collection of international logos including novali, VERHOFF, ABEE, team², RWTH AACHEN UNIVERSITÄT, NEDERLAND CIRCULAIRE HOTSPOT, BEPA, and NEDERLAND CIRCULAIRE HOTSPOT.

Here is a non-exhaustive list; if you are not included, please contact us.



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# SPECIFIC TOPICS

## Opportunities - workshops

### Smart battery disassembly

With the increasing demand for batteries in green energy and electric vehicles, sustainable recycling practices are essential. The session explored the integration of automation, digitalization, and artificial intelligence to address the challenges of battery disassembly, emphasizing safety, environmental sustainability, and economic viability.

## BARRIERS

### Economical

- High CAPEX for the disassembly line
- Competitiveness with China and other recycling options

### Environmental

- Ownership of battery (the producer should be in charge of disassembling)

## LEVERS

### Technological

- Standardisation of the batteries design
- Develop more efficient and safe process

### Political

- Create a digital passport of the battery



# Battery Recycling Quest

This workshop focused on pioneering affordable battery recycling solutions. Techniques such as hydrometallurgy, direct recycling, and pyrometallurgy were examined for their effectiveness in minimizing environmental impact and enhancing economic efficiency.

## BARRIERS

### Technological

- Battery Chemistry diverse, under development

### Economical

- Recycled materials cost more than primary material price

### Political

- Timeline sync between politics and technology, which couldn't afford the political regulations

## LEVERS

### Legal

- (Regulations) eco-design, standardization, EU value chain, education...

# Electrode materials for sustainable batteries

During this workshop discussions concentrated on innovative developments in key battery cell constituents including cathode active materials, anode materials, and electrolyte materials. Participants explored technological solutions that not only improve the life cycle of batteries but also reduce environmental impact and support the economic viability of recycling processes.

## BARRIERS

### Societal

- International conflicts and geopolitical risks on the critical materials (Ni, Co, Li) supply

### Technological

- Security issue related to the use of certain materials such as Li metal

### Economical

- This sector requires significant investment and presents many risks associated with evolving legislation. Investments are difficult to find

## LEVERS

### Legal

- EU regulations promote battery actors and accelerate industry development

### Technological

- Advancements like SBB aim to enhance safety and performance, emphasizing the importance of design and electrode selection for achieving a circular economy

### Societal

- Sustainable solutions require changing habits and mindset

# Batteries second life

Stakeholders from across the battery lifecycle converged to address how manufacturers of second battery life solutions can collaborate more effectively with battery and cell providers. The focus was on leveraging digital solutions to track battery health and history ('Battery Passport'), enhancing collaboration between second life battery and cell producers, and ensuring robust warranty systems for refurbished battery products.

## BARRIERS

### Technological

- Refurbished batteries must comply with same warranty/insurance vs. new ones
- Data sharing is a must to efficiently refurbish EoL batteries

### Legal

- Current EU Regulation Favours Recycling

## LEVERS

### Legal/Technological

- Standards/procedures that define how should EoL batteries be handled to ensure a good 2nd Life product are still not available

### Environmental

- 2nd Life batteries can increase material use efficiency thus drastically reducing pollution

### Societal

- Avoiding waste is not only an environmental question but also ethical one

# Massification through cross border collaboration

This workshop addressed the strategic imperative of attracting a significant volume of End-of-Life (EoL) batteries to Wallonia. Participants explored system-level aspects necessary to build a sustainable EoL battery ecosystem. Key discussions revolved around optimizing logistics, navigating regulatory landscapes, and identifying new business opportunities

## BARRIERS

### Economical

- Difficult access to funding for SME's
- Lack of investment for industrialization of R&D results

### Political/societal

- NIMBY (not in my backyard) potential nuisances and environmental impact of gigafactories

## LEVERS

### Economical

- Cross-border funding programs foster collaboration and financial support for projects

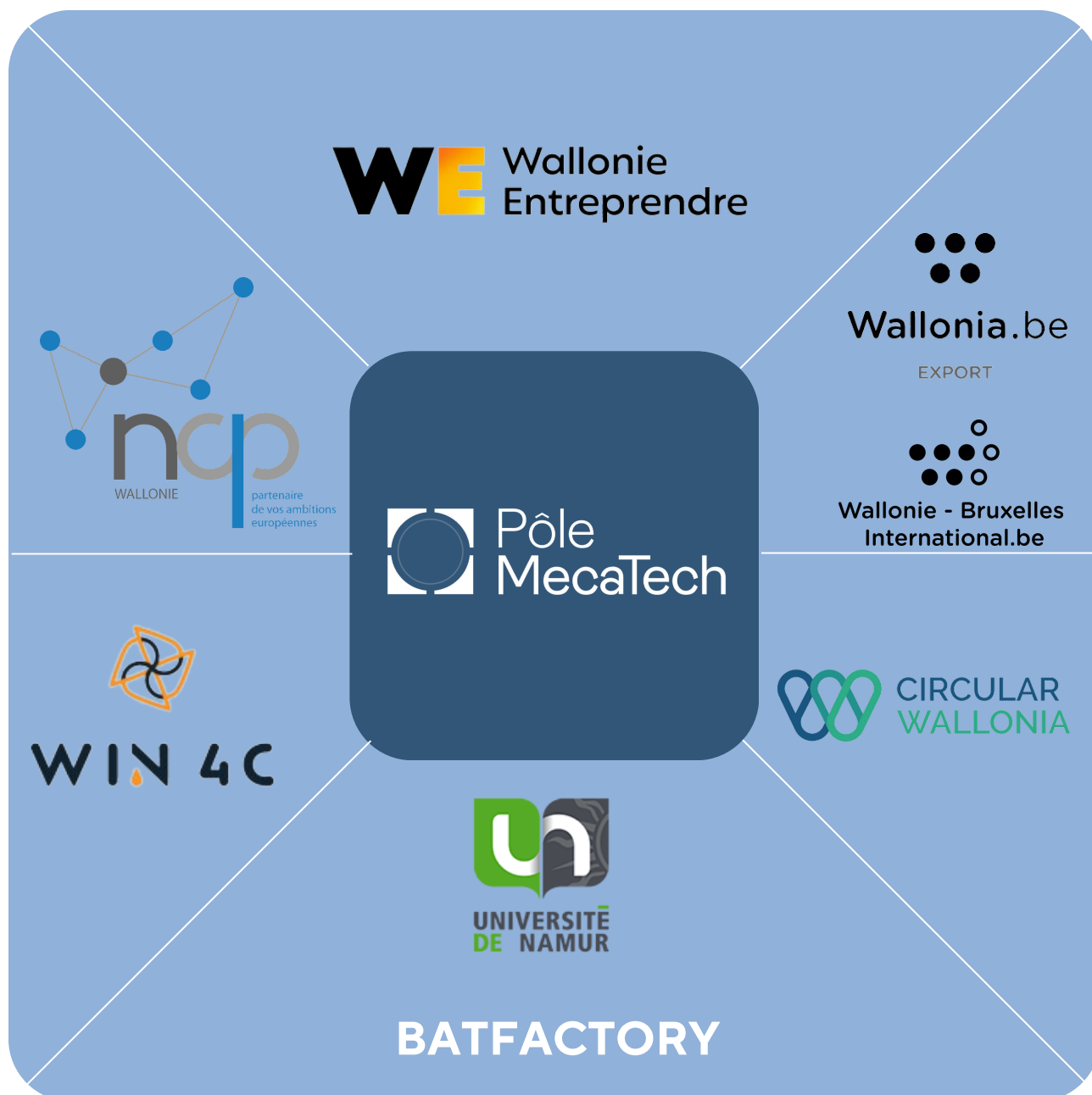
### Political/societal

- Education raise awareness and increase social acceptance of recycling activities

### Technological

- Massify recycling flows, implement flexible processes, and leverage the knowledge in the Walloon

# WALLONIA'S KEY PARTNERS



# Wallonie Entreprendre

Wallonie Entreprendre supports Walloon businesses in various ways: financing (loans, guarantees, venture capital), support (advice, training), export assistance, aid for business transfer and takeover, as well as networking opportunities. Their mission is to promote the creation, growth, innovation, and sustainability of enterprises (from SMEs to large companies) throughout the whole life cycle of business to stimulate regional economic development. Additionally, as part of the Walloon Recovery Plan, the Walloon Government has allocated Wallonie Entreprendre a budget of 25.5 million euros to fund projects aimed at developing an industrial sector for batteries in Wallonia. Seven projects have been selected and are currently under development.

## CONTACT

 [transition@wallonie-entreprendre.be](mailto:transition@wallonie-entreprendre.be)

# AWEX

The Wallonia Export & Investment Agency or AWEX, is the public service in Wallonia in charge both of attracting foreign investment to Wallonia-Belgium and to stimulate foreign trade by assisting the companies established in our region in their export endeavours.

It constitutes a one-stop shop for all foreign companies interested in locating to Wallonia or expanding their existing activities and is the complete partner for all Walloon companies wishing to develop overseas.

As a foreign trade agency, Wallonia Export & Investment Agency carries out a mission of promotion and information for the benefit of both Wallonia and the foreign business community.

The Wallonia Export & Investment Agency can offer dedicated support to companies active in the Battery ecosystem thanks to its Senior Industry Specialist, its specialized Business Developer, and a strong network of counselors present in more than 100 countries.

Various actions have already been organized, such the organization of a dedicated trade mission to generate connections with the battery ecosystems in the Nordics (2022), or in the Basque Country (2023) but also the support of high-level foreign investors. Several of them are currently being supported by Wallonia Export & Investment Agency to settle in Wallonia. Names cannot be disclosed for confidentiality reasons.

## CONTACTS

 [Raphaëlle ALBESSARD : r.albessard@awex.be](mailto:r.albessard@awex.be)

 [Rafaël JAIMES CONTRERAS : r.jaimесcontreras@awex.be](mailto:r.jaimесcontreras@awex.be)


# WBI

Wallonie-Bruxelles International (WBI) is the Ministry responsible for the international relations of the Walloon Region and the Wallonia-Brussels Federation in Belgium. The Research & Innovation Department of WBI fosters networks between R&I players in Wallonia-Brussels and other countries, promoting international research partnerships and open innovation. It coordinates the Research & Innovation Platform, uniting universities, research centers, competitive clusters, and public bodies to identify common priorities and pursue joint international initiatives.

The Platform is supported by 10 Scientific & Academic Counsellors based in global innovation hubs, who connect with key international initiatives and networks. Various initiatives have been organized for the Battery ecosystem, including identifying industrial and financial partners, hosting networking events, submitting joint research projects, organizing prospecting missions, and promoting researcher mobility programs.

## CONTACTS

 [Loïc Lefèvre : l.lefèvre@wbi.be](mailto:l.lefèvre@wbi.be)

 [Anaëlle Demarche : a.demarche@wbi.be](mailto:a.demarche@wbi.be)

## BatFactory

Batfactory is a portfolio of research projects funded by Wallonia, with a budget of 11.4 million euros, aimed at developing the production of batteries and components for stationary electrical energy storage and collective applications (Communauté d'Energie Citoyenne, Communauté d'Energie Renouvelable and Peer2Peer). These projects are being carried out jointly by UNamur, UMons, UCLouvain, ULB, Materia Nova, CRM and CERNAERO.

BatFactory is also aligned with the energy objectives of Europe and Wallonia, in line with the region's smart specialization strategy (S3). The project is also integrated into the "Digital Wallonia" digital strategy, the "Circular Wallonia" strategy, PACE 2030, and aims to promote growth, business competitiveness and the goal of "zero carbon", in line with the initiatives of the Plan de Relance.

### CONTACT

 [Prof. Bao-Lian SU](mailto:bao-lian.su@unamur.be) : [bao-lian.su@unamur.be](mailto:bao-lian.su@unamur.be) (UNamur)

## WIN4C

The Walloon Initiative for Circular Materials (Win4C) is Wallonia's Strategic Innovation Initiative (SII), part of Strategic Innovation Domain (SID) 1 of the Intelligent Specialization Strategy (S3). This ambitious initiative aims to position Wallonia as Europe's "Circular Materials Valley" by 2030, notably by attracting European waste flows and converting them into new materials.

Win4C aims to anticipate the major changes that lie ahead in the management of our resources and in the relocation of production, repair and recycling activities on our territory. To achieve this, WIN4C will pool outstanding collaborative platforms for the characterization, elaboration, processing, tracking and recycling of materials, promote dialogue between its members on research-innovation strategy, activate possible support at European level, support the creation of new activities, contribute to training and awareness-raising offers on the circular economy of technological materials, and also ensure the development of genuine expertise in relation to life-cycle analysis and compliance with sustainable financing criteria.

### CONTACT

 [win4c@crmgroup.be](mailto:win4c@crmgroup.be)

## NCP Wallonie

Recognized by the European Commission to provide high quality professional services on European research and innovation fundings, NCP Wallonia's services are free of charge and are aimed at all public and private research actors in Wallonia. The NCP Wallonia supports you in your participation in European collaborative projects and increases your chances of obtaining funding. Our team of counselors have in-depth expertise in the various themes of European research programs, including in the topic of Battery.

### CONTACTS

 [Jean-Jacques Lemaire](mailto:jean-jacques.lemaire@ncpwallonie.be) : [jean-jacques.lemaire@ncpwallonie.be](mailto:jean-jacques.lemaire@ncpwallonie.be)

 [Sixtine Descrousseaux de Medrano](mailto:sixtine.desrousseauxdemedrano@ncpwallonie.be) : [sixtine.desrousseauxdemedrano@ncpwallonie.be](mailto:sixtine.desrousseauxdemedrano@ncpwallonie.be)

## Circular Wallonia

Circular Wallonia is a regional initiative launched by the Walloon government in Belgium, aiming to promote the transition toward a circular economy. It supports businesses, research centers, and public authorities in adopting more sustainable production and consumption models, reducing waste, and improving resource efficiency. The program provides financial and technical assistance to various sectors, encouraging innovation in recycling, product design, and resource management. Circular Wallonia also focuses on creating new business models that align with environmental goals and economic growth.

### CONTACT

 [Mélanie Rensonnet](mailto:melanie.rensonnet@spw.wallonie.be) : [melanie.rensonnet@spw.wallonie.be](mailto:melanie.rensonnet@spw.wallonie.be)

# CONTACT US

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*If you have any questions or require further information, please contact one of the MecaTech cluster experts.*



Perrine Flament  
Projects & Innovation Director  
perrine.flament@polemecatech.be



Philippe Stégen  
Energy Expert  
philippe.stegen@polemecatech.be



Jean-Paul de Mussy  
Battery Expert  
jeanpaul.demussy@polemecatech.be

## Visit our website

<https://www.polemecatech.be/fr/>

