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LIBERTY Newsletter

The LIBERTY project started in January 2021. Since then, the evolution of the project focused on the definition of **system-level requirements**, the **consolidation of a preliminary battery pack design**, the **definition of the performance and safety related test plan** as well as the important **considerations of circular economy related LIBERTY battery pack aspects**.

This newsletter briefly presents the state of many of the **innovations currently being addressed** by the LIBERTY project, **news about the COLLABAT cluster**, as well as some retrospect highlights.

Enjoy reading!

Insight in LIBERTY's technical work

What we aim for:

LIBERTY's overall target is **substantially improving BEV battery performance, safety and lifetime from a lifecycle and sustainability point of view**.

The **key objectives** of LIBERTY are:

- **Objective 1: To achieve a range of 500 km on a fully charged battery pack;**
- **Objective 2: To achieve a short charging time below 18 minutes;**
- **Objective 3: To achieve an ultimately safe battery system;**
- **Objective 4: To achieve a long battery lifetime of 300.000 km;**
- **Objective 5: To achieve sustainability over the battery pack's entire life cycle, reducing its environmental impact by 20 %.**

LIBERTY project develops a complete battery back starting from current innovations at TRL (Technology Readiness Level) 4, the final result of LIBERTY will be a TRL 7 battery system (demonstrator in operational environment). The smart combinations and implementations of innovations to reach these goals are described in brief in the next section.

Data collection for LIBERTY battery circularity and environmental sustainability assessment

December 2022

One of the aims of the LIBERTY project is to reduce life cycle environmental impacts of the innovative battery by at least 20% compared to the benchmark. Thus, MON has developed a matrix which was shared with the project partners in order to i) identify the most suitable circular design criteria and indicators for consideration in the development of a resource-efficient battery pack, and ii) start gathering the required inventory data to perform the corresponding life cycle assessment of the LIBERTY battery in order to identify hotspots for further improvement and determine the potential savings compared to the benchmark. This has been supported by the development of individual and group meetings between MON and the project partners who have been actively sharing the required information and data, as well as providing technical support.

Maybe you have met us @

[32nd CIRP Design Conference \(CIRP Design 2022\) - Design in a changing world](#)

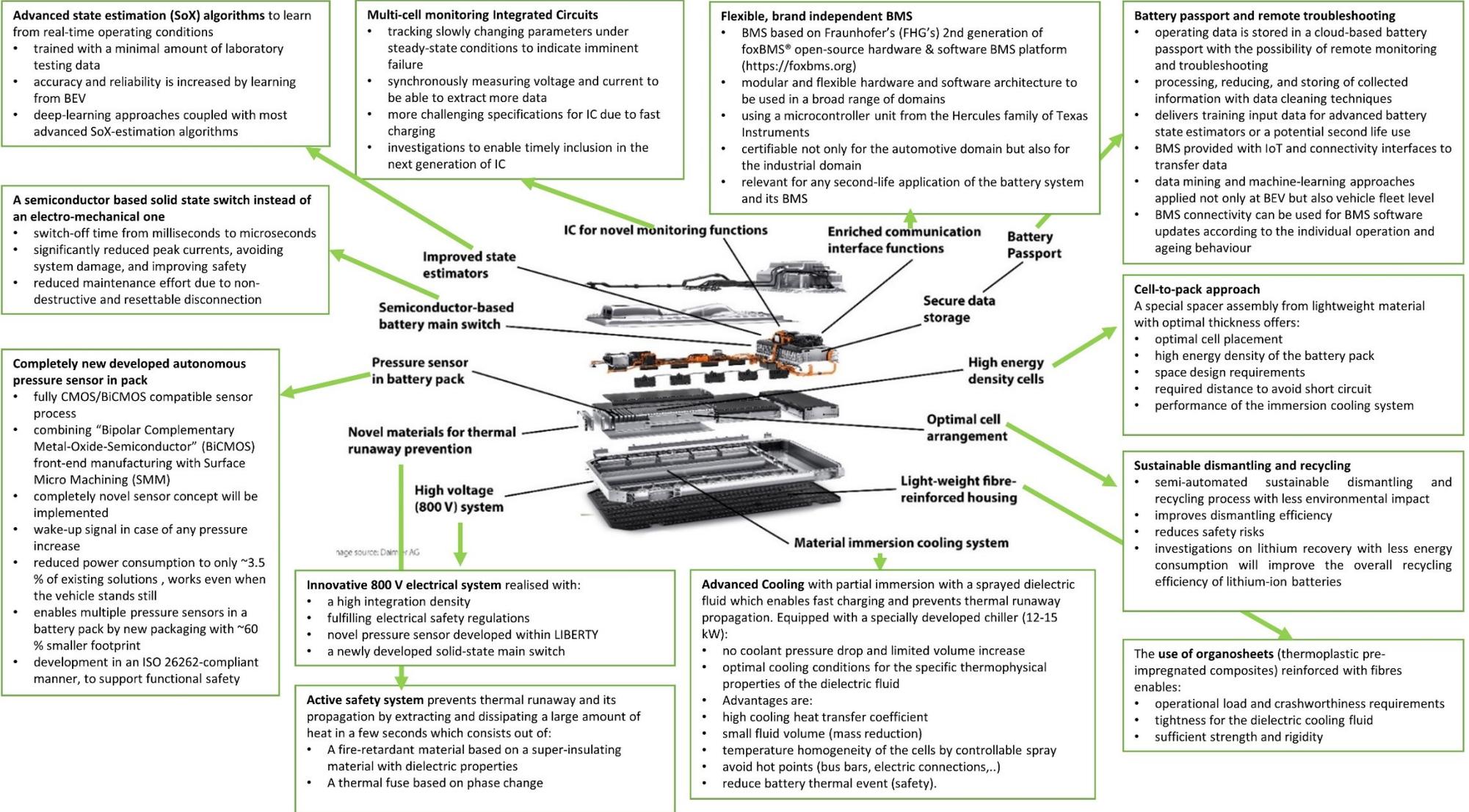
28-30 March 2022, Paris, Spain

Our colleagues from MGEF presented the preliminary results on relevant circular design criteria for consideration in the development of batteries. Find the details in the **conference paper**: Exploring the applicability of circular design criteria for electric vehicle batteries [here](#).

They have also recently published a paper in *Renewable and Sustainable Energy Reviews* analysing the main issues regarding the development of combined circular economy and life cycle assessment studies for batteries for electric vehicles [here](#).

Brief overview on LIBERTY Innovations

The innovations within LIBERTY will lead to a **compact high-performance battery pack** that brings extended **range, short charging times, long travel distance capability, safety, reliability, user confidence and affordability**. Further details are available on our [website](#).



Maybe you have met us @

Electromobility Technology Workshop: Driving a Greener Value Chain by i-HeCoBatt and LOMARTOV

17-18 May 2022, Valencia, Spain

LIBERTY project was presented by our project coordinator Egoitz Martínez-Laserna at the [Electromobility Technology Workshop: Driving a Greener Value Chain](#) organised under the i-HeCoBatt project and LOMARTOV. It was a great opportunity to meet with stakeholders and to disseminate the objectives and innovations we are tackling in LIBERTY.

The presentation included a general overview about the project and then focused on LIBERTY's [goals](#) and [key innovations](#) and introduced also the [COLLABAT cluster](#), a cluster of four H2020 Battery projects, joining forces to develop sustainable batteries for the future.

You can watch the very interesting video from the talk [here](#).

It was a pleasure to contribute to this great Workshop where 25 speakers contributed to topics like the political framework and trends in the energy and mobility sector, the present and future solutions & challenges for green mobility, and finally, the latest innovations in the field of EV components covering their whole value chain: from advanced materials, testing & use phase, up to end-of-life solutions.



COLLABAT Cluster

LIBERTY is part of COLLABAT – H2020 Battery projects joining forces towards sustainable future battery packs



Four EU H2020 projects – [ALBATROSS](#), [HELIOS](#), [LIBERTY](#), [MARBEL](#) – joined forces to form the COLLABAT cluster, and to bring state-of-the-art research for complex transport industry challenges toward transport decarbonisation and energy transition, in line with EC climate neutrality goals. The cluster takes up the challenges associated with the future of the electric vehicles sector that fundamentally depends on its technological capacity to **develop more cost-efficient and long-lasting battery packs** - in terms of **lifetime and range** - based on a **sustainable approach** to ensure the deployment of electric vehicles in the mass market.

The intention of COLLABAT is to **promote technology transfer across relevant stakeholders**, such as academia, vehicle OEMs and the entire EV (electric vehicle) battery supply chain, including 2nd life use and better recycling after End of Life (EoL), for development and realisation of a next generation of battery packs for electric vehicles and plug-in hybrids.

COLLABAT has defined 4 technical subclusters

- Sustainability. Leader: HELIOS
- Testing. Leader: MARBEL
- Battery Management System (BMS). Leader: LIBERTY
- Modelling. Leader: HELIOS & LIBERTY

You can find activities and news from COLLABAT Cluster on [LinkedIn](#).

RETROSPECT – some highlights

COLLABAT Cluster @TRA 2022

16 November 2022

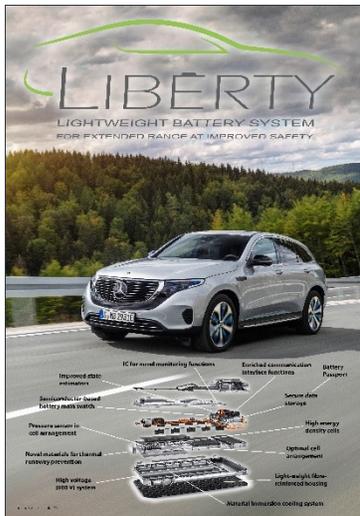
[COLLABAT](#) organised the **Super Cluster session: “Batteries for automotive applications”** at the TRA2022 in Lisbon together with BAT-1 Cluster ([ASTRABAT](#), [SAFELIMOVE](#), [SOLiDIFY](#) project, [SUBLIME](#)) & Gen3Bat cluster ([3beLiEVe](#), [COBRA](#), [HYDRA H2020](#), [SeNSE](#)). The session consisted of two consecutive blocks and gave a 3 hours full workshop covering important battery topics from different angles.



The “Super Cluster Event” addressed the **current challenges facing electric vehicle batteries** and presented approaches to overcoming them from three different research & innovation clusters to get **a complete understanding of the current developments in EVs and batteries**, their challenges and how these three project clusters are addressing those.



In the frame of the event our coordinator Egoitz Martínez-Laserna gave an overview about the COLLABAT Cluster and presented the topic session on BMS and Sensors. The session was a great success!



How to find out more about LIBERTY project:

The project is evolving quickly, and the design of LIBERTY's Battery Pack is almost completed. Stay tuned for upcoming news, events, and publications.

Visit us on our [website](#)



 Follow us on [LinkedIn](#)



[COLLABAT LinkedIn page](#)

[LIBERTY Leaflet](#)

[LIBERTY Poster](#)

[Articles about LIBERTY published online](#)

LIBERTY project @TRA 2022

15 November 2022

Attendees of the TRA 2022 visiting the poster session had the **opportunity to get informed about the LIBERTY innovations** by Eduardo Miguel and Egoitz Martinez-Laserna!



The project was presented in the frame of the poster session on Tuesday, 15th of November 2022, from 12:00 – 19:00 by from IKERLAN. Besides that, **LIBERTY was invited to submit a full journal paper to the TRA Article Collection** organised by the [Journal ETRR – European Transport Research Review](#) . We will keep you informed on the release!

LIBERTY @ TV show „Teknopolis“ in Basque TV

17 May 2022

The TV show Teknopolis is dedicated to R&D advances in the basque research and technology network. You can listen to the interview with LIBERTY coordinator Egoitz Martinez-Laserna

NXP-Article about LIBERTY

18 March 2022

Read more about how Better Batteries Will Help Speed Up EV Adoption and how NXP will contribute in the frame of LIBERTY on their [website](#).

Successful Review Meeting

31 August 2022

The LIBERTY Review Meeting has been quite a success. Our Project Officer has explicitly appreciated the work done so far in LIBERTY. The progress made on the innovations has been shown during the meeting. The good technical progress and the good quality of the deliverables were highlighted. In addition, the well-organized review meeting and the presentations shown were positively mentioned. This was only made possible by the excellent cooperation of all LIBERTY partners during the first 18 months. In particular, many thanks to all of you who have been directly involved in the review meeting, for their valuable contributions and excellent performance.

LIBERTY consortium meeting

29-30 June 2022

The 4th consortium meeting & General Assembly took place at [IKERLAN](#) facilities in San Sebastian where we had the chance of finally meeting in person with the possibility to join online for those who could not attend personally. The consortium engaged on sound technical discussions, evaluated our great ements in the last 6 months and even had the chance to visit [Mubil](#).



PROJECT FACTS

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Start: **01 January 2021**

Duration: **42 Months**

Total investment: **10.8 M€**

Participating organisations: **16**

Number of countries: **7**



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