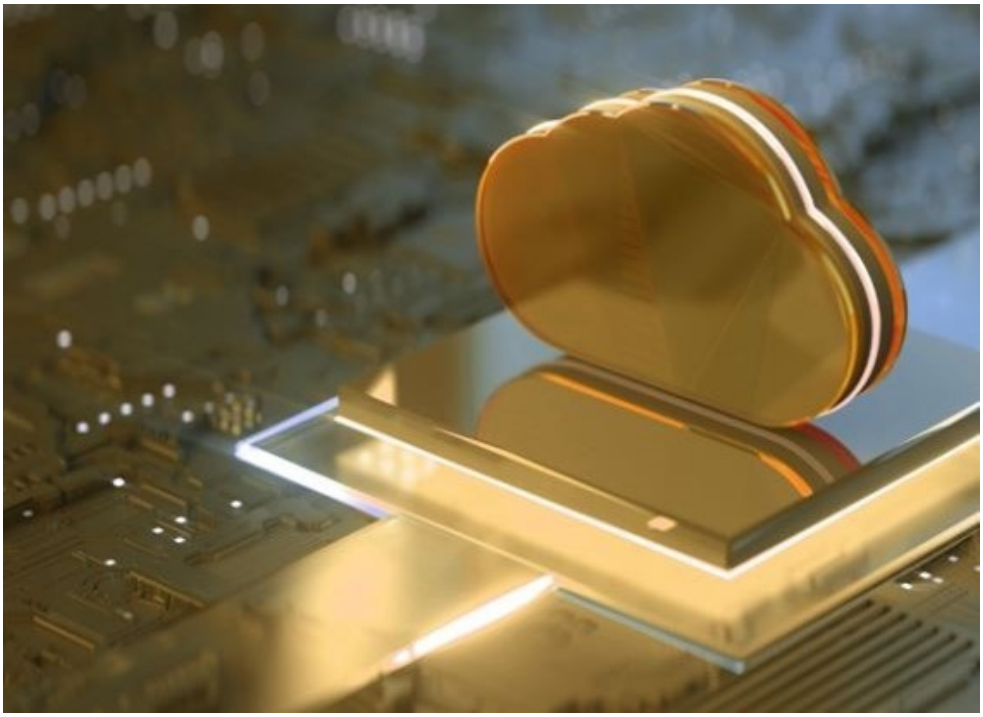
NEXTBMS

Advanced physics and data-based BMS for optimal battery utilization

Newsletter # 5 | July 2026



Dear reader,

Welcome to the fifth NEXTBMS newsletter!

As we head into the summer, we are pleased to share the latest developments from the NEXTBMS project. In this edition, you can explore newly published project deliverables, discover insights from the latest BMS Alliance webinar, and learn more about our ongoing progress towards next-generation battery management systems.

We also look back on two successful scientific contributions presented at the European Control Conference (ECC 2026) and the Transport Research Arena (TRA 2026), where project partners shared key research results with the international research community.

In addition, get to know the people behind NEXTBMS through our latest Coffee Break Interviews, featuring members of the project team who share their perspectives on the project's research, collaboration, and ambitions.

We wish you a pleasant summer and thank you for following the progress of NEXTBMS. Enjoy reading!

Kind regards,

The NEXTBMS Team

Project Results

Deliverables

The following deliverables are now available to read on our website:

- D1.2: Requirements report for advanced BMS
- D1.3: BMS specification report
- D2.4: Scalable physics-based models for BMS and cloud
- D4.1: Upscaling and sizing methodology for different battery pack voltage level

The BMS Alliance

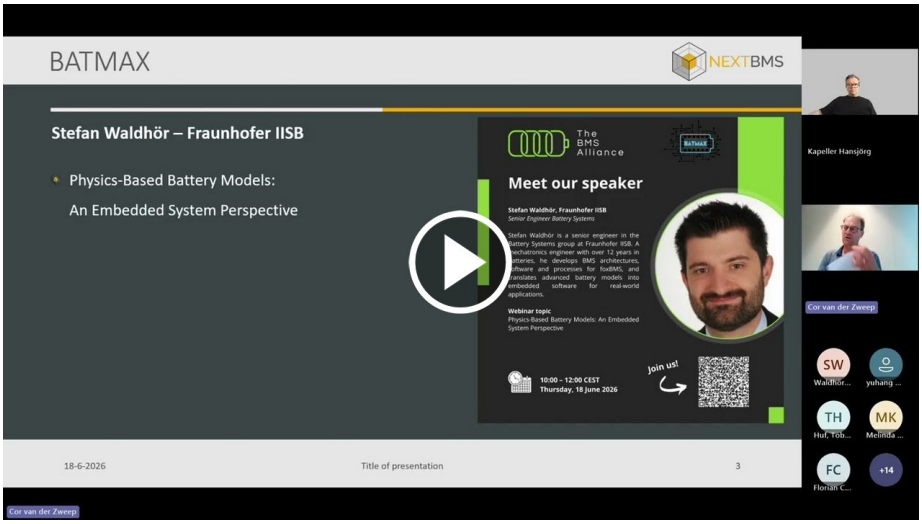
Insights from the fourth BMS Alliance webinar

On 18 June, the NEXTBMS project hosted the fourth BMS Alliance webinar, bringing together experts from across Europe to explore the latest advances in battery management systems (BMS).

The webinar featured presentations from the BATMAX, ENERGETIC, NEMO, and NEXTBMS projects, showcasing innovative approaches to battery modelling, embedded systems, battery state estimation, and cloud-supported battery management.

The webinar concluded with a panel discussion moderated by Tomaž Katrašnik (University of Ljubljana, NEXTBMS), who was joined by the speakers to discuss current BMS developments, future needs, and the value of collaboration in strengthening Europe's battery ecosystem.

The presentations are available on our website in the related news item, and the full webinar recording can be viewed below.



News

NEXTBMS General Assembly 6 marks progress towards the final project phase

On 9 June 2026, the NEXTBMS consortium met online for its sixth General Assembly to review project progress and discuss the activities planned for the coming months.

A key topic was the approved six-month project extension, providing additional time to complete battery module integration, further develop the advanced BMS software, and carry out system-level validation. Partners also reviewed the status of the upcoming testing activities at EDF and TNO, as well as progress across modelling, hardware development, and validation tasks.

The meeting also covered dissemination and exploitation activities. The General Assembly concluded with an overview of the next milestones and action points to keep the project on track.

Attended events

TNO Paper on Fast Charging at ECC 2026 in Iceland

Our partner TNO, working within the NEXTBMS project, presented the paper "Degradation-aware fast-charging of Li-ion batteries using joint electrical and thermal model predictive control" at the European Control Conference (ECC 2026), held from 7 to 10 July in Iceland.

The paper, authored by Frederic Fabry, Alessio A. Lodge, Robinson Medina, Feye S.J. Hoekstra, Steven Wilkins and Madalin Frunzete, presents advances in fast-charging strategies for electric vehicles based on physics-based battery modelling developed within the NEXTBMS project.

Read more here.

NEXTBMS Shares Research Insights at TRA 2026

NEXTBMS participated in the Transport Research Arena (TRA) 2026 in Budapest, where Pegah Rahmani (VUB) presented the joint research work "Enhancing Battery Diagnostics Using On-Chip Electrochemical Impedance Spectroscopy", developed together with UL and VUB.

The presentation sparked valuable discussions around advanced battery diagnostics and the potential of on-chip EIS technologies for more reliable and efficient battery monitoring.

TRA 2026 was a great opportunity to exchange ideas with researchers and industry experts, strengthen collaborations, and share the latest progress within the NEXTBMS project.

Many thanks to the organisers, partners, and attendees for the engaging conversations throughout the event.

The NEXTBMS coffee break interviews

Get to know Pegah Rahmani from VUB-EPOWERS

Pegah Rahmani completed her Bachelor's and Master's degrees in Electrical Engineering in Iran. After two years of industry experience in electrical and instrumentation engineering, she joined the MOBI-EPOWERS research group at Vrije Universiteit Brussel (VUB) as a Ph.D. researcher. Within the NEXTBMS project, VUB is responsible for cell monitoring and balancing, BMS hardware prototype development, software integration, virtual upscaling of battery packs, and system-level performance validation.

What was your original motivation to become a researcher?
My original motivation was a strong interest in new technologies in my field and the drive to understand and apply them. I enjoy tackling challenging problems and having deep technical discussions. Becoming a researcher felt like the best way to explore innovation while turning ideas into real outcomes.

What is your (main) research area today?
Optimization and Enhancement of Battery Management Systems (BMS) for Electric vehicles.

Read more here.

Get to know Mario Klünder from Robert Bosch GmbH

BOSCH
Invented for life

Mario Klünder originally studied mechanical engineering with a major in system dynamics and control at the University of Stuttgart. After obtaining a PhD in this field with a focus on a medical technology topic, he joined Bosch in 2016. There, he was part of a research team working on battery systems, where he gained extensive experience in battery modeling and laboratory work. In 2021, he joined the Battery-in-the-Cloud project and has since worked in various roles within the project. Currently, he serves as Lead Engineer for model and algorithm development.

What was your original motivation to become a researcher/project manager?
During an internship, I assisted in a modelling task for controlling the tracking behavior of an airborne telescope. This is what set me on the path to pursue a major in system dynamics and control and to become a researcher. Later, I ventured into the field of batteries, since I believe that they are the future for powering cars and will play a significant role to de-carbonize our economies.

What is your (main) research area today?
Models and algorithms for battery systems (cloud and embedded).

Read more here.

Get to know Levi Vos from NXP

Levi Vos is a Systems Engineer at NXP, currently focused on evaluating advanced battery management system (BMS) capabilities for next-generation electric vehicles. With a strong background in power electronics and system-level innovation, he is exploring Electrochemical Impedance Spectroscopy (EIS) as a diagnostic and optimization tool within NXP's BMS chipset. His work emphasizes leveraging EIS to enhance fast-charging performance and improve battery health monitoring. By integrating EIS into the NEXTBMS platform, he aims to unlock new insights into cell behavior during high-current charging, supporting safer, faster, and more efficient energy management for future mobility.

What was your original motivation to become a researcher/project manager?
Mainly just curiosity, I want to understand how complex systems work and contribute to innovations that make a real impact. The semiconductor industry fascinated me because of its depth and breadth, it offers endless opportunities to explore new technologies and solve challenging problems.

What is your (main) research area today?
My main research area today is semiconductors in vehicle electrification, focusing on battery management systems (BMS), eFuses and gate drivers.

Read more here.

Partners NEXTBMS

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