

# BATTwin

*Flexible and scalable digital-twin platform for enhanced production efficiency and yield in battery cell production lines*

## Newsletter

2025 – Issue 1

### BATTwin Project

#### BATTwin Month 16 Meeting

The BATTwin project team gathered in picturesque Grenoble for an engaging and productive two-day gathering on March 27th and 28th, 2025. Hosted by Schneider Electric, the meeting provided a comprehensive review of the work completed in recent months. Key topics included the development of process-level and system-level digital twins, evaluation of the proposed solution's impact, and strategies for communication and exploitation. Furthermore, workshops focused on data modeling and digital twin development were organized, culminating in an agreed action plan for upcoming tasks.



#### BATTwin Showcases Digital-Twin Development at the Battery Manufacturing Industry Winter School in Grenoble

The Battery Manufacturing Industry Winter School, held from March 24th to 27th, 2025, in Grenoble, France, successfully brought together 102 European researchers, trainers, industry professionals and students to explore battery production. As a co-organizer of the event, the BATTwin project played a pivotal role in advancing discussions on digitalization and cybersecurity in battery manufacturing.



Funded by  
the European Union



Innovate  
UK

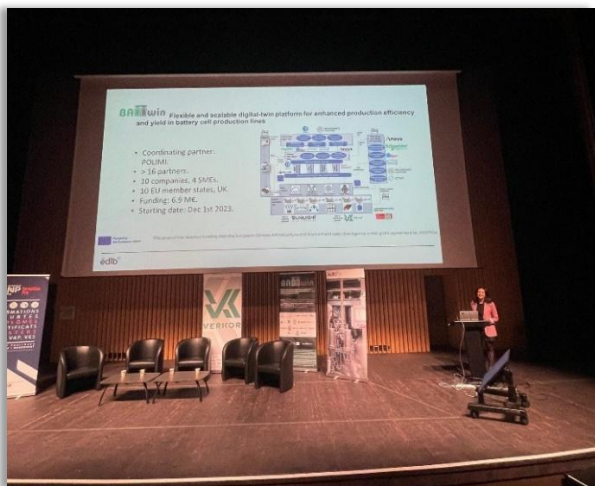
The BATTwin project has received funding from the European Climate, Infrastructure and Environment Executive Agency under grant agreement No. 101137954. The contents of this newsletter are the sole responsibility of the parties and cannot be considered as reflecting the position of the European Union.

UK Participants are supported by UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee.

Among the distinguished speakers, Prof. Marcello Colledani, BATTwin project coordinator, delivered an insightful presentation on digitally-enhanced zero-defect manufacturing, covering:

- (i) the challenges in battery cell manufacturing and opportunities for efficiency improvement,
- (ii) the work performed within BATTwin for the development of process and system-level digital twins, with an introduction of models leveraged.

Overall, his session emphasized the role of system level digital twin technology for the production efficiency optimization, defects and scrap rates reduction in the gigafactories ramp-up phase - key KPIs in the push towards a more sustainable and competitive European battery industry.



Likewise, Prof. Nada Mimouni, cybersecurity expert within BATTwin, highlighted the growing importance of leveraging ontologies and knowledge graphs to mitigate cyber-attacks in battery manufacturing facilities.

## News

### Bureau Veritas participation at the €-Tech Europe fair

On Monday April 14th, Bureau Veritas' energy transition team had the pleasure of participating in the first edition of the "Battery Day" event, which was organized in Bologna as part of the international trade fair E-Tech Europe dedicated to the innovation in the automotive sector. Such occasion has been a great opportunity to connect with the main players in the Italian battery ecosystem and discuss with them current and future challenges for the industry.

As digitalization accelerates across the sector, her session addressed the critical need for robust security frameworks enabling advanced threat analysis and pattern identification for mitigation strategies development.

The Winter School featured an engaging mix of expert-led keynotes, hands-on training, and site visits to cutting-edge facilities, including the R&D Battery Platform CEA/Synchrotron ESRF and Verkor's pilot cell production line. Participants, including PhD students and industry professionals, had the opportunity to gain practical and technical insights and build valuable collaborations at the intersection of academia and industry.

BATTwin's contribution to the Winter School highlights its commitment to fostering innovation and strengthening Europe's leadership in battery manufacturing. By integrating advanced digital solutions, the project continues to drive sustainable and efficient energy solutions for the future.

During the day, various perspectives were presented for this sector, which is so important for the sustainable transition of the European economy, but at the same time facing an extremely turbulent period. In particular, it was emphasized how the strong competition from Asian markets and the uncertain economic context generated by the recent introduction of import tariffs make the need of finding effective local solutions increasingly urgent. In this regard, the debate revolved around the importance of



fostering innovation, looking especially at two critical topics: digitalization and the development of a circular economy for batteries.

Consequently, it was the perfect occasion to introduce the BATTwin project to the industry operators, showing how our consortium is developing a solution for addressing the issue of scraps generation during battery cell manufacturing. Not only did the concept of a multilevel digital twin platform generate particular interest among the participants, but it was also an opportunity to grasp their perspectives on some specific aspects of the battery passport, the topic around which Bureau Veritas' role in the project is focused. This type of interaction strengthens our belief that what we are developing in the BATTwin project can make a significant contribution to the evolution of this sector in Europe and motivates us to continue our research and development efforts towards completing our work.

### Participation in the Battery 2030+ Roadmap Workshop in Ulm

In the frame of the Battery 2030+ Roadmap Workshop, held in Ulm, Germany, on the 19th of March 2025, Andreas Rauh presented the goals and the current status of BATTwin.

During this presentation a special attention was given to the development of process-level and system-level digital twins as well as to strategies for the quantification of uncertainty and model reliability.



### Battery 2030+ Initiative



The BATTwin project joined the BATTERY2030 initiative where, together with other EU funded projects, aim to take actions that support the implementation of the European Green Deal, the EU Sustainable development Goals, The European Action Plan on Batteries and the SET Plan.

### Battery 2030+ Annual Conference, Münster, Germany – 6-7 May 2025

The Battery 2030+ will be hosting their 5th Annual Conference on May 6-7<sup>th</sup>, this will be a two-day event full of insightful discussions on battery research, where BATTwin project will be represented. For more news and events organised by Battery 2030+, visit their website: <https://battery2030.eu/>.



## Contact us

Project Management:

Prof. Marcello Colledani - Politecnico di Milano

[marcello.colledani@polimi.it](mailto:marcello.colledani@polimi.it)

### Exploitation and Dissemination Management

Dr Bojan Boskovic – Cambridge Nanomaterials Technology

[bojan.boskovic@cnt-ltd.co.uk](mailto:bojan.boskovic@cnt-ltd.co.uk)

Claudia Lung - Upcell Alliance - [claudia.lung@upcell.org](mailto:claudia.lung@upcell.org)



[www.BATTwin.net](http://www.BATTwin.net)



<https://www.linkedin.com/groups/13035256/>