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FreeTwinEV

D1.2 First common report on inward and outward visits, summer schools and joint HEU proposals submission			
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Authors:	Viltare PLATZNER (STUBA) Gabriel GALIK (STUBA) Sai MULPURI (UTWENTE) Peter BENO (ADSSEN)		

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Executive Summary

This deliverable presents the first common report **on inward and outward visits**, the organization of the **joint Summer School**, and the **preparation and submission of Horizon Europe proposals** within the FreeTwinEV consortium. It provides evidence of mobility activities, summer school results, and a structured approach towards joint proposal development, all of which significantly contribute to building research excellence, strengthening institutional cooperation, and advancing the consortium's scientific objectives.
The deliverable is linked to **WP1 – Networking and Capacity Building**, specifically addressing **Task 1.2 Senior Researchers' Knowledge Transfer**, **Task 1.3 Young Researcher Mobility Exchanges, Task 1.4 Joint Summer Schools** and **Task T1.5 Joint HEU proposal preparation and submission**. The outcomes directly support FreeTwinEV's mission to position its partners at the forefront of research and innovation in digital twins and advanced battery systems.

Between **Month 7 and Month 17**, a total of one senior researcher and seven young researchers participated in mobility exchanges, primarily hosted at **the University of Twente**. These visits provided both senior and early-stage researchers with opportunities to engage in knowledge transfer, strengthen methodological expertise, and build collaborative links between partner institutions. The mobility activities were closely aligned with ongoing research work, ensuring direct scientific relevance and impact.

The first **FreeTwinEV Summer School** was organized at the University of Twente from **21–23 May 2025.** The program brought together 19 students from multiple countries and covered a wide range of topics, including systems engineering, electrochemical modeling, CAD applications, and multiphysics simulations. Feedback from participants was overwhelmingly positive, with all respondents confirming that they achieved their learning objectives and would recommend the summer school to peers. The Summer School thus proved to be an effective tool for training, networking, and dissemination of consortium expertise.

In parallel, the consortium developed a **four-pillar strategy for Horizon Europe proposal preparation**. This includes targeting relevant Pillar II calls (notably HORIZON-CL5-2026-01-D2-05 within the Batt4EU Partnership), supporting MSCA Postdoctoral Fellowship applications (two submitted by STU), preparing a CSA proposal under the European Excellence Initiative (deadline November 2025), and broadening collaboration beyond FreeTwinEV's immediate scope (three additional HEU proposals submitted with partner involvement). These actions demonstrate a proactive approach to leveraging Horizon Europe opportunities while reinforcing institutional excellence and cooperation within the consortium.

1. Task and deliverable methodology

1.1. Methodology

The methodology for this deliverable combined three main elements:

- ✓ **Mapping and planning of mobility** activities to align exchanges with the research agenda and ensure maximum scientific and networking impact.
- ✓ **Design and implementation of the first joint Summer School**, structured around thematic lectures, tutorials, and hands-on sessions to ensure comprehensive coverage of FreeTwinEV research topics and provide a platform for knowledge exchange and networking.
- ✓ **Strategic proposal preparation** organized around four main pillars to ensure comprehensive engagement with Horizon Europe opportunities while extending collaboration both within and beyond the consortium.

1.2. Roles of partners

STU – Acted as moderator of the mobility activities and lead partner for **Task 1.2 Senior Researchers' Knowledge Transfer** and **Task 1.3 Young Researcher Mobility Exchanges**. STU also contributed actively to proposal preparation and coordination across activities.

UTwente – Hosted the first Summer School (May 2025) and served as leader of **Task 1.4 Joint Summer Schools**, ensuring the design and implementation of the program and providing scientific expertise in key thematic areas.

ADSSEN – Lead partner for **Task T1.5 Joint HEU proposal preparation and submission** and organizer of trainings for MSCA Postdoctoral Fellowship candidates, thereby strengthening the consortium's capacity to attract and support young researchers.

LCM – Active contributor across all tasks, supporting mobility exchanges, providing input to the Summer School program, and engaging in Horizon Europe proposal submissions.

2. Report of Inward and outward visits, Summer School and joint HEU proposal Submission

2.1. Inward and outward visits

Visits and staff exchanges under **WP1** are implemented through **Task 1.2 – Senior Researchers' Knowledge Transfer** and **Task 1.3 – Young Researcher Mobility**

Exchanges. Both tasks commenced in **Month 7** and will continue until the end of the project.

While the original plan envisioned more mobility activities within the **first half of the project**, the timeline was adjusted during detailed planning to better align with the **research component** of the project. This ensured that exchanges could be directly linked to ongoing research activities and thus provide greater impact.

Visits of the researchers are divided into 2 parts – senior researchers and young researchers.

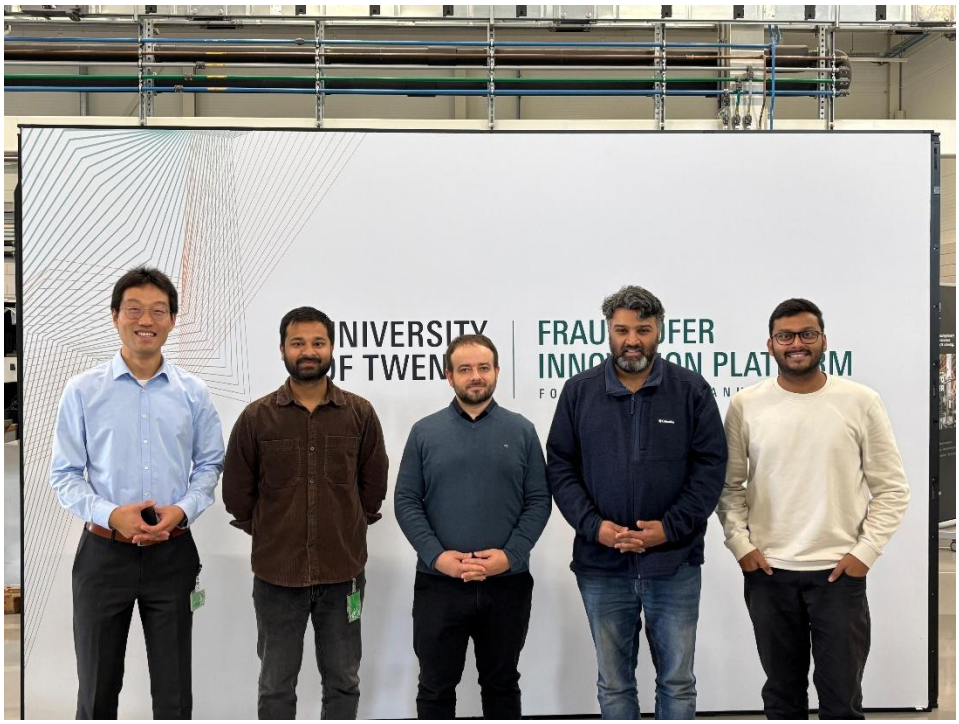
2.1.2. Senior Researchers' Knowledge Transfer

Within the period **of M7-M17 1 senior researcher conducted** the visit. As was mentioned, during the planning of the visits it was decided to host and send more senior researchers during the second half of the project as the visits are strongly linked with the research component.

No.	Name of researcher	Place of visit	Date
1	Miroslav Mikolášek	UTwente	24-26 September, 2025

September 2025 visit to UTwente

STU researcher **Miroslav Mikolasek** visited the University of Twente and held meetings with colleagues Prasanth Venugopal and Sai Mulpuri, as well as a short discussion with Prof. Dr. Thiago Batista Soeiro, head of the Power Electronics and Energy Systems group.



On the first day, the visit included a guided tour of laboratories dedicated to power electronics and battery technologies. These facilities are equipped with advanced infrastructure for high-power conversion, battery testing, and system integration, enabling research across the full spectrum from cell characterization to system-level validation.

Key technical discussions focused on:

- ✓ **Molicel cell formation:** Review of current experimental results and methodologies applied to optimize performance and reliability during the formation process.
- ✓ **Electrochemical Impedance Spectroscopy (EIS):** Exchange on challenges of accurate measurement and data evaluation on Molicel cells, including reproducibility and interpretation of spectra.
- ✓ **Measurement setup verification:** Joint inspection of the EIS test configuration, followed by a discussion of potential improvements to increase accuracy and resolution of spectra, particularly under dynamic operating conditions.

On the second day, the tour was hosted by **Prof. Shun Yang** from the Faculty of Engineering Technology (ET), accompanied by PhD candidate **Mr. Niraj Chauhan**. The visit comprised a tour of other laboratories and meetings with research groups working in the thematic areas of additive manufacturing, second-life applications, and pilot line development for battery production.

The visits included:

- ✓ **Fraunhofer Innovation Platform for Advanced Manufacturing at the University of Twente (FIP-AM@UT)** – a joint innovation hub focusing on the development and industrial translation of advanced manufacturing technologies, supporting pilot-scale prototyping and technology transfer.
- ✓ **CUBE** – the design and engineering facility at Twente that provides a creative environment for innovation, prototyping, and collaboration between academia and industry.
- ✓ **Pilot Line for Cell Manufacturing** – a dedicated facility for experimental production of battery cells, enabling validation of new materials, processes, and scalable manufacturing methods.

During the visit to **CUBE**, there was also an opportunity to **meet Mr. Arun Olsen from Elysian**, who is working on advanced Batteries testing and design for aircraft applications.

The visit provided valuable insights into the Twente group's strong expertise in high-efficiency power conversion, grid integration of storage systems, advanced diagnostic methods, and the broader ecosystem of manufacturing and applied research facilities. The discussions helped to identify concrete opportunities for improving measurement methodologies and for extending cooperation in the field of battery diagnostics, modelling, and pilot-scale manufacturing.

Plan for the upcoming period (M18-36):

No.	Name of researcher	Home institution	Place of visit	Date
1	Gabriel Galik	STU	LCM	15-16 October 2025
2	Jan Ciganek	STU	LCM	15-16 October 2025
3	Peter Tapak	STU	LCM	15-16 October 2025
4	Martin Bata	STU	LCM	15-16 October 2025
5	Marcus Pereira Pessoa	UTwente	LCM	27-28 October 2025
6	Marcus Pereira Pessoa	UTwente	STU	30-31 October 2025
7	Gabriel Galik	STU	UTwente	Q1-Q2 2026
8	Martin Bata	STU	LCM	Q1 2026
9	Gabriel Galik	STU	LCM	Q1 2026
10	3-4 Senior Researchers	STU & UTwente	LCM	May 2026

2.1.2 Young researcher mobility exchanges

Within the period of M7-M17 7 young researchers took part in the exchanges. Both visits were at the University of Twente.

No.	Name of researcher	Place of visit	Date
1	Matej Hanzalik	UTwente	3-7 June 2024
2	Michal Uličný	UTwente	3-7 June, 2024
3	Andrej Ürge	UTwente	3-7 June 2024
4	Šimon Berta	UTwente	3-7 June 2024
5	Milan Plzák	UTwente	20-23 May 2025
6	Matej Hanzalík	UTwente	20-23 May 2025
7	Patrik Šulhánek	UTwente	21-23 May 2025

June 2024 visit to UTwente

The program of the visit was designed to provide a comprehensive and practical understanding of modern systems engineering, advanced battery technologies, and power electronics, integrating both theoretical knowledge and hands-on experience. The curriculum was led by a team of distinguished experts and researchers, offering students invaluable insights into current industry trends and innovative research.

The visit kicked off with a round of introductions, setting the stage for a collaborative and engaging environment. The initial focus was on systems engineering, with a Systems Engineering Awareness workshop. The students were introduced to fundamental concepts like systems thinking and design tools, which provide the framework for complex engineering projects. This was followed by a practical case study, applying a Systems Engineering Approach to the Development of a BPEA Battery Pack. Students from STU also participated in a Self-Reflection system Engineering part, connecting their academic knowledge to real- world applications.

The program then delved into the specifics of charging systems and power electronics. An Intro to Power Electronics group + Charging Systems in Power Electronics was provided. The principles of Wireless Power Transfer and Introduction to Battery Systems were covered. The integration of battery services and electric vehicles (EVs) into the grid was discussed in the lecture on Energy storage and EV grid integration. A tour of the Power Electronics group lab provided students with a firsthand look at the sophisticated equipment and ongoing research. Students from STU also had the opportunity to present their own PhD projects, fostering a valuable exchange of research interests and ideas. The day continued with presentations on Microgrid Design & Battery Sizing in Hybrid Optimization of Multiple Energy Resources (HOMER) Software, Converter-Induced EMI issues in Battery Systems: Approaches to Minimize Common Mode and Leakage Currents, and Triangular Current Mode Modulation for AC/DC Converter System.

The final phase of the program concentrated on advanced diagnostics, prognostics, and battery management systems. A lecture on Advanced Diagnostics and Prognostics in Batteries was given, while a discussion on Machine Learning Methods for Battery Aging Assessment Based on EIS took place. The students then engaged in practical, hands-on activities, including Battery Module Testing and BMS Measurements with Wiring Harness. This practical session was a highlight, allowing students to apply theoretical knowledge in a laboratory setting. The internship concluded with the students Presentation and discussion of results, solidifying their understanding of the concepts covered throughout the week. The visit was a significant success, providing a rich blend of theoretical lectures, expert-led workshops, and hands-on lab sessions. The program not only broadened the students understanding of key engineering disciplines but also provided them with practical experience crucial for their future careers. The diverse range of topics and the opportunity to engage with leading experts made this an invaluable learning experience. The student's active participation and thoughtful presentations demonstrated their commitment and high level of academic preparation.

May 2025 visit to UTwente

3 PhD students from STU undertook an outward visit to the University of Twente in May 2025, coinciding with the organisation of the first FreeTwinEV Summer School. This visit provided the young researchers with a unique opportunity to

combine participation in structured training with hands-on exposure to advanced research environments.

Prior to the Summer School, the PhD students visited several leading research facilities at the University of Twente, including:

- the **Fraunhofer Innovation Platform (FIP) – Advanced Manufacturing Centre**,
- the **MESA+ Nanolab**, and
- the **Power Electronics and Battery Laboratories**.

These visits offered the students direct insights into state-of-the-art research infrastructures and methodologies in the fields of advanced manufacturing, nanotechnology, power electronics, and battery systems. The exposure to these laboratories fostered **fruitful discussions with UTwente researchers and staff**, enabling the PhD students to broaden their perspectives on research practices and identify complementary expertise relevant to their doctoral projects.

The combination of **laboratory visits and Summer School participation** proved highly beneficial. While the labs showcased the **technological depth and experimental capacity** at UTwente, the Summer School provided training in **concept development, pitching, and cross-disciplinary collaboration**. Together, these experiences opened avenues for **future mobility planning**, with concrete ideas discussed for subsequent visits and potential collaboration opportunities.

This activity therefore directly supported WP1 objectives by **strengthening early-stage researcher skills, fostering networking, and creating pathways for deeper collaboration** between STU and UTwente research groups.

Plan for the upcoming period (M18-36):

No.	Name of researcher	Place of visit	Date
1	2 PhDs	LCM	Q1 2026
2	1 PhD	LCM	Q2 2026
3	4-6 PhD students	LCM	May 2026
4	3-4 PhDs	UTWENTE	Q3 2026
5	3-4 PhDs	UTWENTE	Q4 2026

2.2. Summer School

The Summer School activity is linked with the task **T1.4 Joint Summer Schools.** The planning of the Summer Schools was initiated at the start of the task. It was agreed that three editions would be organized: the first at the **University of Twente**

(UTwente) in **May 2025**, the second at **LCM in May 2026**, and the third at **STU in February 2027**, aligned with the conference hosted at STU. As the project started in May 2024, scheduling the Summer Schools strictly during the summer period proved challenging.

UTwente led the preparations for the first edition, holding several organizational meetings with the consortium to design a comprehensive program. Each consortium partner contributed by presenting their expertise in the field.

Program of the Summer School

The **FreeTwinEV Summer School on Digital Twin Development for Battery Systems** took place at the University of Twente from **21–23 May 2025**. Over three days, the program combined lectures, tutorials, and hands-on sessions, providing participants with a comprehensive introduction to electrical, mechanical, and multiphysical modeling of battery systems for sustainable and safe electric vehicles.

The Summer School was structured around three thematic days:

Day 1 – Systems Engineering & Introduction to Battery Systems (21 May)
The program opened with an overview of system engineering approaches to digital twin development, delivered by Dr. Marcus Pereira Pessoa. Participants took part in a hands-on workshop applying these methods. In the afternoon, sessions introduced the fundamentals of battery systems in electric vehicles and

mechatronic system design, followed by interactive training on soft skills such as project concept preparation and research idea pitching.

Day 2 – Electrochemical Modeling & CAD Applications (22 May)
The second day focused on battery electrochemistry and advanced Battery Management Systems (BMS). Participants engaged in practical tutorials on Python-based electrochemical modeling, led by researchers from the University of Twente. Later sessions explored CAD modeling of battery systems and simulation-focused CAD applications, guided by experts from the Slovak University of Technology in Bratislava.

Program Overview

	Wednesday 21 May	Thursday 22 May	Friday 23 May
Morning	Welcome of Participants – Registrations Event Opening Dr. Nataly Bañol Arias (University of Twente) "System Engineering in Digital Twin development" Dr. Marcus Pereira Pessoa (University of Twente)	Welcome of Participants – Registrations "Day at a glance: Mapping the day's learning" Dr. Nataly Bañol Arias (University of Twente) "Electrochemical Impedance Spectroscopy and Advanced BMS systems" Dr. Prasanth Venugopal (University of Twente) "Tutorial: Python based battery electrochemical modelling" Sai Krishna Mulpuri (University of Twente)	Welcome of Participants – Registrations "Day at a glance: Mapping the day's learning" Dr. Nataly Bañol Arias (University of Twente) "Multi-physics modeling, FEM and CFD approaches" Dr. Gabriel Gálik (Slovak University of Technology in Bratislava) "Tutorial: Thermo-Electrics domain modeling in FEM" Dr. Gabriel Gálik (Slovak University of Technology in Bratislava)
	Coffee break	Coffee break	Coffee break
	"Hands-on Workshop: System Engineering in Digital Twin development" Dr. Marcus Pereira Pessoa (University of Twente)	"Tutorial: Python based battery electrochemical modelling" Sai Krishna Mulpuri (University of Twente)	"Tutorial: Thermo-Hydraulics and CHT modeling in CFD" Dr. Gabriel Gálik (Slovak University of Technology in Bratislava)
	Lunch break	Lunch break	Lunch break
Afternoon	"Introduction to battery systems in electric vehicles". Dr. Martin Bata (Slovak University of Technology in Bratislava) "Efficient Mechatronic System Design & Optimization" Bernd Winkler (LCM) "Soft skills training session: Project concept preparation" Peter Beňo and Miroslav Konečný (ADDSEN)	"CAD Modeling of Battery Systems" Dr. Martin Bata (Slovak University of Technology in Bratislava) "Tutorial: CAD Modeling of Battery Systems" Dr. Gabriel Gálik and Dr. Martin Bata (Slovak University of Technology in Bratislava) "CAD Models for Simulations" Dr. Gabriel Gálik and Dr. Martin Bata (Slovak University of Technology in Bratislava)	"Tutorial: Thermo-Hydraulics and CHT modeling in CFD" Dr. Gabriel Gálik (Slovak University of Technology in Bratislava) "Tutorial: Practical Demonstration of Complex Model of Battery System" Dr. Martin Bata (Slovak University of Technology in Bratislava) "Digital Twin Integrated Battery Management System Architecture". Sai Krishna Mulpuri (University of Twente)
	Coffee break	Coffee break	Coffee break
	"Soft skills training session: Research idea pitching" Peter Beňo and Miroslav Konečný (ADDSEN)	"Wrap-up"	"Wrap-up"

Day 3 – Multiphysics & Digital Twin Integration (23 May)
The final day addressed multiphysics approaches, including finite element method (FEM) and computational fluid dynamics (CFD) modeling for battery systems. Tutorials covered thermo-hydraulics, conjugate heat transfer (CHT) modeling, and included a practical demonstration of a complex battery system model. The Summer School concluded with a session on integrating digital twin concepts into Battery Management System architectures, connecting theory with practical applications.

Across the three days, participants benefitted from expert lectures, collaborative workshops, and networking opportunities with researchers and industry professionals. The program provided both technical depth and practical relevance,

equipping attendees with valuable skills to advance digital twin technologies in e-mobility.

The full program can be found HERE.

Participants

The registration process for the summer school was open to the public and promoted through the project's website as well as its social media channels. In total, 16 students from 7 different Universities participated in the event.

Feedback

After the Summer School the feedback form was sent out to all the students. The results indicate a high level of **satisfaction with the summer school**. Half of the respondents reported being **'very satisfied'** with the knowledge gained, while the remaining half were **'satisfied'**. All participants confirmed that they achieved their desired learning outcomes.

The **overall quality** of the summer school was rated as **'excellent'** or **'good'**. The **difficulty level** of the lectures and tutorials was considered **'just right',** while one participant found it **'too easy'.** Organization and logistics received very positive feedback, with respondents rating them as 'excellent' or 'good'. Importantly, all participants indicated that they would recommend the summer school to their peers.

In the **open comments**, participants highlighted the comprehensive coverage of topics, **insights into digital twins** and **battery modelling**, as well as opportunities for **networking** as the most valued aspects of the programme. Suggestions for improvement included **allowing more time for self-presentations**, providing access to presentation materials, and including additional demonstrations. Proposed future topics included **real-life digital twin applications** and **integration of PyBaMM with other systems.**

Overall, the feedback demonstrates that the summer school successfully met its objectives, provided valuable learning opportunities, and was very well received by participants.

All the suggestions and the comments will be taken into consideration while organising a second Summer School in 2026.

The blogpost about the summer school 2025 can be found HERE.

2.3. Joint Horizon Europe proposals

The strategy for the preparation of Horizon Europe proposals is structured around four main pillars. **(1)** the focus is on Pillar II calls directly linked to the research topics outlined in the FreeTwinEV Strategic Research Agenda (SRA, D2.1). **(2)** opportunities under the MSCA Postdoctoral Fellowships are being pursued to strengthen research capacity and foster talent development. **(3)** Coordination and Support Actions (CSA) are considered to enhance networking, knowledge exchange, and community building. Finally, the strategy also encompasses **(4)** Horizon Europe calls that, while not directly aligned with the FreeTwinEV consortium's core scope, can involve and benefit other research teams within the consortium.

(1) Horizon Europe Pillar 2 calls

As part of the strategic screening of the Horizon Europe Work Programme, Cluster 5: *Climate, Energy and Mobility* was identified as the most relevant area for FreeTwinEV, given its strong focus on sustainable transport, clean energy, and advanced mobility solutions. While the 2024–2025 Work Programme did not include calls directly addressing the research priorities set out in the FreeTwinEV Strategic Research Agenda (D2.1), a highly relevant opportunity was identified in the upcoming 2026 Work Programme.

The targeted call is **HORIZON-CL5-2026-01-D2-05: Accelerated multi-physical and virtual testing for battery aging, reliability, and safety evaluation (Batt4EU Partnership)**. This topic aligns closely with FreeTwinEV's objectives, as it emphasizes advanced methodologies for modeling, simulation, and validation of battery systems across their lifecycle. The call aims to accelerate testing through multi-physical and digital approaches, reduce development costs, and improve the reliability and safety of next-generation battery technologies—directly complementing FreeTwinEV's research agenda on digital twins and battery systems.

With a submission deadline in **January 2026**, this call has been prioritized in the proposal preparation strategy. Preparatory steps include early consortium building, alignment of research topics with the call scope, and integration of FreeTwinEV's expertise with complementary partners from industry and academia. This approach ensures that FreeTwinEV can position itself competitively and maximize its chances of success within this strategic Horizon Europe opportunity

(2) MSCA Postdoctoral Fellowships

This call was identified as an excellent opportunity to attract young research talents to STU and strengthen the university's research capacity. A structured support process was implemented to maximize participation and proposal quality.

The activity began with a **general webinar on MSCA PF held on 14 May 2025**, which attracted **17 registered participants**. Following the webinar, interested candidates were invited to prepare and submit their project concepts by **31 May 2025**. These concepts were reviewed jointly by trainers from ADSSEN and researchers from STU.

To ensure effective collaboration, the candidates were **matched with STU researchers** according to their expertise and project alignment. A **follow-up meeting on 12 June 2025** provided an opportunity to further discuss and refine the project ideas, ensuring that they met both the MSCA evaluation criteria and the scientific objectives of STU.

As a direct outcome of this structured process, **two MSCA Postdoctoral Fellowship proposals were submitted by STU**. This represents an important step in positioning the university as a host institution for high-potential researchers, while at the same time contributing to the long-term objective of building excellence in battery research and digital twin technologies

(3) Coordination and Support Actions

CSA instruments provide an excellent opportunity to deepen collaboration, extend networks, and reinforce the long-term impact of the FreeTwinEV initiative beyond the core consortium. They are particularly valuable for strengthening institutional cooperation and fostering strategic partnerships at the European level.

In this context, the consortium is building on its existing collaboration within the **European University Alliance EULiST**, of which STU is an active member. Leveraging this partnership, preparations are underway for a proposal under the European Excellence Initiative - **EEI (HORIZON-WIDERA-2025-01-ACCESS-01).** This call offers the possibility to enhance institutional capacity, foster research excellence, and increase the visibility and competitiveness of the consortium members within the European Research Area.

The submission deadline for this proposal is **20 November 2025**, and the consortium is currently engaged in aligning strategic objectives, coordinating inputs, and mobilizing partners to ensure a strong and competitive submission.

(4) HEU cooperation within the consortium, outside of the scope of the FreeTwinEV research topic

To enhance collaboration impact and further strengthen STU as a research institution, the consortium actively explored opportunities outside the immediate scope of the FreeTwinEV research agenda. As part of this effort, inter-institutional connections within the consortium were mapped, leading to the identification of complementary areas of cooperation.

This approach resulted in the submission of **three additional Horizon Europe project proposals**, each involving STU together with at least one other FreeTwinEV partner. By extending collaboration beyond the core thematic focus of FreeTwinEV, these initiatives broaden the consortium's engagement in European research and innovation activities, reinforce institutional partnerships, and contribute to the long-term sustainability and visibility of the network.

Here is the summary of all submitted HEU proposals:

Acronym	ID	Topic	Partners from FreeTwinEV	Status
BREATHE	101289609	HORIZON-CL6-2025-01-ZEROPOLLUTION-01	UTwente (Coordinator) STU	In evaluation
SiGMA	101284246	HORIZON-MSCA-2025-PF-01-01	STU UTwente – for the secondments	In evaluation
MoS2-ZIBNext	101284015	HORIZON-MSCA-2025-PF-01-01	STU UTwente – for the secondments	In evaluation
DUP	101238786	HORIZON-MISS-2024-CIT-01-02	UTwente (Coordinator) LCM STU	Rejected
BridgeTTe	101213091	HORIZON-EIE-2024-CONNECT-02-01	ADSSEN STU	Active (started June 2025)

2.4 Conclusions

This first common report has demonstrated the significant progress achieved within FreeTwinEV's networking and capacity-building activities during the first 17 months of the project. The **inward and outward mobility exchanges** - spanning both senior and young researchers - have effectively supported knowledge transfer, skills development, and the creation of new collaborative links across partner institutions. These visits not only strengthened methodological expertise but also laid the foundation for deeper scientific cooperation in the upcoming phases of the project.

The successful organization of the first **FreeTwinEV Summer School at the University of Twente** further highlighted the consortium's capacity to design and deliver high-quality training events. The overwhelmingly positive feedback confirmed its role as an impactful instrument for knowledge dissemination, researcher training, and community building. Lessons learned from this edition will serve to refine and enrich the forthcoming Summer Schools in 2026 and 2027.

Parallel **efforts in Horizon Europe proposal preparation underscored the consortium's proactive approach** to research funding and collaboration. By strategically targeting calls under Pillar II, MSCA Postdoctoral Fellowships, CSA initiatives, and broader opportunities, the partners have positioned themselves strongly for success in upcoming evaluations. **The submission of multiple proposals, including those beyond FreeTwinEV's immediate scope, reflects the consortium's ambition to reinforce institutional excellence**, expand its European presence, and ensure long-term sustainability.

Overall, the activities reported here confirm that FreeTwinEV is firmly on track to achieve its objectives of advancing digital twin technologies and next-generation battery systems through research excellence, mobility, training, and proposal development. Building on this strong foundation, the next reporting period will focus on scaling up mobility exchanges, delivering the second Summer School, and intensifying proposal preparation efforts, ensuring that the consortium continues to grow in impact, visibility, and scientific leadership within Europe's research and innovation ecosystem.