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FreeTwinEV

D5.2 Dissemination, Communication and Exploitation Strategy 2			
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Executive Summary

The deliverable D5.2, Dissemination, Communication and Exploitation (DCE) Strategy of the project FreeTwinEV, presents the updated objectives, approach, and results of Dissemination, Communication and Exploitation activities during the first 24 months of the project. FreeTwinEV started on May 1st, 2024, and is planned to end on the 30th, of April 2027.

This deliverable is an outcome of all three tasks of Work Package 5, with a focus on T5.3 Establishing and Implementation of Exploitation strategy (Lead: ADDSEN).

D5.2 is the second and final version of the DCE Strategy, building upon D5.1, which was submitted in Month 6 (October 2024). This updated version reflects the progress achieved during the first 24 months of the project, with an increased focus on the evaluation of communication and dissemination results, as well as the project's exploitation strategy.

The deliverable is divided into 3 main parts representing each sub-activity: Communication, Dissemination and Exploitation. Compared to D5.1, this version provides updated KPIs with their current status, an evaluation of dissemination and publication activities, and a refined exploitation strategy.

1. Task and deliverable methodology

1.1. Methodology

The dissemination and communication strategy continues to guide efforts to inform target audiences about project progress and ensure proper exploitation of results, with particular emphasis on the research component. In line with the Grant Agreement, EU funding acknowledgement is included across all project outputs and communications.

1.2. Roles of partners

ADDSEN as the WP5 and task leader of T5.3 - Establishing and Implementation of Exploitation strategy

Contributors: STU, UTWENTE, LCM

This task aimed to create and implement the Exploitation Strategy of the project. It facilitated the delivery of scientific (research component) and non-scientific content through the project's channels, website, and social media. It focused on identifying all key exploitable results (KERs) and define how they can be further exploited.

ADDSEN was responsible for collecting inputs and creating the complete version of Dissemination, Communication and Exploitation Strategy.

STU and UTWENTE together with LCM, reviewed the document and added the necessary comments and data.

Based on the feedback obtained, ADDSEN has finalised the D5.2.

1.3. Timeline of preparation

ADDSEN led the preparation of the Dissemination, Communication and Exploitation Strategy 2, collecting input on potential dissemination activities from all consortium partners during months 21–24. The draft document was circulated for partner review before the final version was submitted to the Participant Portal on time in Month 24.

2.Communication

2.1. Project website

The FreeTwinEV project website at https://freetwinev.stuba.sk/ serves as the primary platform for outreach and communication across all audiences — from consortium partners to the general public — providing accessible, up-to-date information on project goals, progress, news, events, and outcomes. The site shows the consortium's commitment to transparency and makes project funding acknowledgement clearly visible.

The website has been updated regularly in the following subpages:

- **News**: This subpage has been informing about the events, news, study visits and conferences attended by the researchers. With each post there has been a corresponding post on social media, drawing attention to this content.
- **Deliverables**: This section provides access to all public outputs generated throughout the project, including reports, strategic documents, tools, and resources, regularly updated in a structured table for easy navigation.
- **Milestones**: The page summarizes the significant achievements within the project's timeline, marking the successful completion of key phases, innovations, and project goals.
- **Events**: All the events in connection to the FreeTwinEV project has been updated on this project's subpage. The upcoming events are uploaded to collect interest and participation in upcoming activities.

2.2 Knowledge hub

This section of the website went through significant changes, making it more accessible and comprehensible for people interested in its content. The available documents are posted in a structured way with graphic banners separating each section for easier orientation. New documents are uploaded after each event that includes relevant content and information. When sharing documents and photos after each event, we use Knowledge Hub as the platform to maximize the reach of all documents and encourage the public to visit the page. In the menu of the FreeTwinEV website, we added a small icon to make the Knowledge Hub even more accessible. Following up on these changes, we are considering a social media and email campaign through the partners to promote the content of the Knowledge Hub.

2.3 Social media

The FreeTwinEV LinkedIn page has continued to grow as the project's main communication channel, with regular posts showcasing partner activities, technical progress, and cross project connections. Since the previous reporting period, the page has featured updates from consortium visits, research insights from battery diagnostics and digital twin development, participation in key European events, and highlights of related Horizon Europe initiatives. These posts helped strengthen visibility, attract new followers from the scientific and industrial communities, and support ongoing engagement with stakeholders interested in digital twin technologies and sustainable mobility.

We maintain a schedule of 1 post per week and encourage the consortium partners to inform and / or include the FreeTwinEV project on their own channels of communication. (online and offline).

In the past period, we set up a strategy for social media communication. We implemented a system of regular calls of the "communication committee". ADDSEN is the leader of social media communication, making sure all outputs stay on brand (tone of voice, graphic design, hashtags, and concept). The aim of communication activities is to foster discussions, partnerships, and potential collaborations.

Social media strategy prepared with defined content categories and implemented via the LinkedIn FreeTwinEV channel:

- milestones and project updates
- research insights and infographics
- events and engagement opportunities
- partner spotlights, interactive content
- Research articles and datasets from Zenodo

The strategy has been maintained, and the posts have been further disseminated through the organisation's official accounts as well as through the personal accounts of its personnel.

A structured **content submission procedure** ensures consistent and coordinated communication across all channels. Monthly calls are held with representatives from each consortium partner to discuss upcoming events, research progress, publishable articles, and other relevant communication topics. During these sessions, the consortium agrees on content deliverables, after which ADDSEN refines and finalises the material before publishing it on the FreeTwinEV website. STU is responsible for maintaining the website and the Knowledge Hub, with links to published content subsequently shared by ADDSEN across the project's social media channels.

Target groups:

- Researchers,
- Students,
- Businesses,
- Policymakers,
- General public

Communication objectives:

- Enhance Knowledge Exchange
- Build Awareness
- Foster Collaboration
- Promote Sustainability and Impact
- Increase Visibility of the FreeTwinEV project

3. Dissemination

Dissemination remains a core element of the FreeTwinEV project's Horizon Europe obligations, ensuring that results and knowledge are effectively shared with relevant stakeholders and the wider public. Building on the strategy established in D5.1, the project continues to communicate its findings and innovations beyond the consortium through scientific publications and conference participation, targeting both academic and industry audiences. In particular, peer-reviewed publications contribute to the broader body of knowledge, sharing validated insights and data with researchers and practitioners across the field.

11 publications +2 datasets have been uploaded to **Zenodo** so far, which is an open-access repository used by researchers. All uploaded publications have been properly credited (acknowledgements included) and fully described with structured information (metadata) so they can be found, cited, and tracked.

Conference participation allows FreeTwinEV to actively engage with experts, present findings, and gather real-time feedback, complementing the project's publication efforts. As outlined in D5.1, these activities collectively drive knowledge exchange, raise project visibility, foster collaboration, and advance dialogue around sustainable innovation. Since the submission of D5.1, consortium members have actively participated in several international conferences and events, presenting research findings and networking with experts in the field.

The table below summarizes conferences attended since the last reporting period.

No.	Conference	Project year	Location	Dates	Participation goals
1	Wiley Analytical Science Conference: Battery Research	2	online	March 31 – April 2, 2025	Participation
2	The Battery Show Europe	2	Stuttgart, Germany	3-5 June 2025	Attendance, Networking
3	38th International Electric Vehicle Symposium & Exhibition (EVS38)	2	Gothenburg, Sweden	June 15-18, 2025	Attendance, Networking

4	DMSRE34	2	Pavlov, Czechia	Sept 8-12,2025	Participation
5	Cluster Day and Technology Village	2	Plzeň, Czechia	22-Oct-25	Active participation
6	Smart City Expo World Congress 2025	2	Barcelona, Spain	4-6 November, 2025	Attendance, Networking
7	SURFINT SREN International Conference	2	Smolenice, Slovakia	19-Nov-25	Active participation
8	Battery Innovation Days 2025 - Graz	2	Graz, Austria	2-3 December 2025	Attendance, Networking
9	eMobility Expo World Congress	2	Malaga, Spain	10-11 March 2026	Attendance, Networking
10	Automotive Battery Tech Summit – Munich	2	Munich, Germany	26-27 March 2026	Attendance, Networking

The project selected a targeted mix of technological expos, scientific symposia, and EU-level battery-sector events because these venues offer direct insight into both the commercial landscape and the policy and research trends shaping the future of the European battery ecosystem. By attending events focused on cutting-edge technologies as well as those centred on regulatory and strategic developments, the team ensured a balanced understanding of market directions, industry needs, and upcoming legislative priorities. Across all events, activities focused on gathering new industrial contacts, strengthening existing relationships, and engaging in discussions that inform the project's research orientation. During Battery Innovation Days 2025 in Gratz, for example, the team held discussions with Tazdin Amietszajew from Coventry University and Michal Sastinsky, CEO of BatteryCheck, reinforcing links with both academic and industrial stakeholders and supporting the project's long-term collaboration and exploitation objectives.

The table below summarizes planned conferences for the remainder of the project.

No.	Conference	Project year	Location	Dates	Participation goals
1	BATTERY 2030+ (annual conference)	3	Turin, Italy	7-8 May, 2026	Tentative, Attendance, Networking
2	International conference on applied physics of condensed matter	3	Štrbské pleso, Slovakia	24-26 June, 2026	Poster, Networking
3	17th World Congress on Computational Mechanics – ECCOMAS 2026	3	Munich, Germany	19-24 July 2026	Planned Presentation
2	IEEE Cybernetics & Informatics	3	Busan, Republic of Korea	23-28 August 2026	Presentation
4	International Slovak-Polish Scientific Conference on Machine Modelling and Simulations	3	Świeradów-Zdrój, Poland	1-3 September, 2026	
5	DMSRE35	3	Jasná, Slovakia	7-11 September 2026	Presentation
6	IEEE Energy Conversion Conference and Expo (ECCE) 2026	3	Vancouver, Canada	04-08 October, 2026	Tentative presentation and attendance (UT)
7	IEEE PES Innovative Smart Grid Technologies (ISGT) Conference	3	Wuhan, China	October 30 - Nov 1, 2026	Tentative presentation and attendance (UT)
8	ANSYS Users Group Meeting and Conference	3	TBA	TBA	Presentation, Best Practice
9	IFAC Conferences oriented to modelling, simulation and optimization	3	TBA	TBA	Various

The dissemination has also been carried out through other project activities such as summer schools, round tables with industries, staff exchanges, and preparation of project proposals.

As of Month 24, the consortium has produced 9 open-access publications in international journals and conference proceedings indexed in Web of Science or Scopus. This exceeds the target of 4 publications per year and demonstrates the strong research output of the project. The publications cover key topics in digital twin technology, battery state-of-health estimation, thermal management systems, and electric vehicle simulations. The consortium continues to target high-impact journals, including the Journal of Energy Storage, IEEE Transactions on

Transportation Electrification, and Applied Energy, among others listed in the table above. The project has also been featured in 4 podcast episodes, including “THE GRANT PODCAST #176: The Widening Series”, “Na plný prúd – podcast o elektromobilite”, and two episodes of “Elektromobilita dnes a zajtra (Verlag Dashöfer)”, helping to translate project activities into content accessible to the general public.

4. Exploitation

The exploitation strategy of the FreeTwinEV project has been designed to maximize the use and value of the project's outcomes, ensuring that innovations, methodologies, and knowledge generated translate into real-world applications and create lasting impact. In FreeTwinEV, the exploitation approach identifies pathways to leverage project results for scientific, commercial, and societal benefits, aligning with both the project's goals and broader European objectives.

The exploitation section of the strategy described in the deliverable D5.1 sets out objectives, responsibilities, and monitoring tools for identifying, assessing, and managing project results throughout the project lifecycle.

Key elements established include:

- **Definition of exploitation goals:** ensuring uptake of results by scientific communities (through publications, open access datasets, training materials), businesses (through identified innovation opportunities and industry collaboration), and policymakers (via evidence-based recommendations).
- **Identification of Key Exploitable Results (KERs):** partners agreed on a structured process to identify, document, and update KERs during the project. Each KER will be described with details on ownership, protection options (e.g. IP rights, licensing), target audiences, and exploitation pathways.
- **Exploitation channels:** results will be shared through scientific publications, conferences, open access repositories (Zenodo), and project events. Non-scientific exploitation includes capacity building, industry collaborations, and policymaker engagement.

The project's results will be exploited through a combination of academic, industrial, and open-science channels that match the maturity and intended impact of each output. Core scientific assets (such as the battery module measurement dataset, reduced-order modelling workflows, and methodological guidelines) will be leveraged by partner universities and research institutes to strengthen research programmes, support new Horizon Europe proposals, and expand collaboration networks. Collaboration with Kurybees, the company that provided the initial battery data, will continue so that the project's validated measurements and modelling results can be incorporated into their evolving dataset, enhancing its reliability and industrial value. The experimental platform and associated results form a baseline for

follow-on initiatives, including the ADVANCE proposal submitted in 2026 (HEU), and will also serve as a direct education demonstrator for students in energy storage, thermal management, and digital-twin engineering. Industrial exploitation is further supported by practical insights gained from simulation work: experience accumulated through AVL FIRE modelling tasks generated detailed technical feedback submitted to AVL in 2025 and again in Q1 2026, contributing to software improvements and strengthening ties with the developer. Open-access distribution via Zenodo, the project website, and professional networks ensures broad uptake by external researchers, SMEs, and industry stakeholders. Training events, workshops, and summer schools reinforce knowledge transfer and embed project outputs into educational and innovation ecosystems, helping to secure sustained long-term use of FreeTwinEV results.

- **Monitoring and KPIs:** a set of indicators was defined to measure exploitation progress, including the number of KERs identified, publications, industry collaborations, training activities, and policy inputs.

The table below summarizes the Key Exploitable results of the research component:

Partner	Key Exploitable Result of the Research Component	Protection/Exploitation route	Preliminary Owner of KER	Status M24	Target audience	Timeline
All	Method for advanced SOH estimation using digital twin	Open-source algorithm and models published on the project website	LCM	Digital Twin in development	Researchers	until the end of the project
All	Distributed intelligent thermal management system design	Open-source system architecture, models and control algorithm published on the project website	STU	Prototype manufacturing and Testing	Researchers	until the end of the project
All	Documentation on experiment design and procedures	Open-source document, published on website, open database	STU	Design of experiment document being prepared. Results of initial tests Published in Repository	Researchers, General Public	until the end of the project
All	Experimental dataset	Open post-project dissemination, open database	UT	Experimental results and DoE documents of Initial tests,	Researchers, General Public	up to four years after the project

				Published on Zenodo		
LCM	Generalized software component for parameter identification in SyMSpace	SyMSpace component, usable within the context of optimization platform SyMSpace by LCM. There are different versions of SyMSpace, including a free version.	LCM		Researchers, Students	up to four years after the project
STU	AVL FIRE modelling methodology and technical feedback	Technical feedback reports submitted to AVL; integrated into software development cycle; contribution to software improvements and industrial collaboration	STU		Businesses, Researchers, Students	continuously
UTWENTE	Multi-scale experimental validation framework for digital twin accuracy assessment	Open-source validation protocols and benchmark datasets published on website and Zenodo	UTWENTE		Researchers, Students	until the end of the project

Key Non-scientific Exploitable Results

Partner	Key Exploitable Result of the Research Component	Protection/Exploitation route	Preliminary Owner of KER	Status M24	Target audience	Timeline
Addsen, STU - sustainability of website	Knowledge Hub	All relevant recordings from events and training materials (presentations) are stored in the knowledge hub. By logging in, users can view and download the content.	opened All	Visual update, technical update (UX improvements for international audience), use for the dissemination of event content, enriched by scientific articles	General Public	up to four years after the project
STU	Internal communication strategy	Replicable management tool developed from audit-based Roadmap.	STU	Internal communication strategy is published on university webpage.	Researchers, Students, General public	-

The description of FreeTwinEV´s target groups was included in D5.1

5. Summary of DEC activities and their KPIs

Building on the DEC activities outlined in D5.1, the updated table below reflects the current state of communication and dissemination efforts across all channels. The project continues to engage diverse audiences, from the general public to specialized research and industry communities, with each activity tracked against designated partners, target audiences, and KPIs.

Project result (tool/activity)	**Partners concerned**	**Dissemination and Communication Activity**	**Target Audience**	**Means & KPIs**	**Status M24**
Project website	All	Regular updates will be shared in the form of blog posts. Project activities will be advertised and followed up. Project public deliverables will be uploaded.	General public, students, researchers	No. of unique visitors: 100, No. of page views: 1000	No. of unique visitors: 2300 No. of page views: 6424 (KPI targets exceeded)
Knowledge hub	STU	Storage of presentations and recordings from training, summer schools, and other events	Researcher (young incl. PhD. stud.)	No. of downloads: 50	No. of downloads: 61 (Target exceeded)
Press releases, press articles	STU	Inform about important project activities (beginning of the project, winning proposal, etc.)	Regional and national news media	No. of expected press releases: 4	2 press releases (STU magazine, STU website) Additional releases planned in Q2/26
Social media Campaigns	All	Information about upcoming events (summer schools, online events, workshops etc.), during and after events. Presentation of research results in attractive form via eye catchy graphic.	Students, researchers, general public	No. of views: 5000 No. of reposts: 100	Followers:192; LinkedIn page views (impressions): 26036; No. of reposts: 32 (growing engagement, campaigns ongoing)
International Conference	All	To disseminate the research results from the research component and ensure their future usage, contributing to project exploitation (active participation will be preferred)	Researchers	No. of researchers participating: 15	14 researchers participating (M1-M24) (Target on track)

Online podcasts	STU	Information about project activities translated into the language of public	General public, students, businesses	No. of podcast participation: 4	No. of podcast participation: 4 (Target achieved)
Visual identity	All	A successful project dissemination needs attractive and visually effective branding.	Partners, businesses, researchers, students, stakeholders	Project logo, Project e-banner, ppt template, etc.	DONE
Open access publications Publication of joining research papers in current content journals and conference proceedings	All	Presentation of new information achieved during project. As far as applicable, publications will be available online at no charge, as green open access. They will also be published in a repository on the project website and in institutional repositories. Scientific outputs will be disseminated via high-impact peer reviewed open access journals	Researchers, industry stakeholders	No. of publications: publications indexed in WOS or Scopus (4/year), Q1 or Q2 total increase by 65%	11 Publications (M24) Target: 4/year – exceeded

The FreeTwinEV project has demonstrated strong performance across its dissemination, communication, and exploitation activities during the first 24 months. The majority of KPI targets have been met or exceeded, most notably in website traffic, Knowledge Hub downloads, publications, and podcast participation. Social media engagement is growing steadily, with LinkedIn reach and reposts increasing alongside intensified communication efforts. Conference participation and press releases remain on track, with additional activities planned for the remainder of the project.

6. Conclusion

The D5.2 Dissemination, Communication, and Exploitation (DCE) Strategy presents the updated framework and results achieved in promoting the FreeTwinEV project's visibility, ensuring meaningful engagement with target audiences, and maximizing the impact of its results during the first 24 months of the project. Through a diverse set of tools and activities—including the project website, social media, academic publications, podcast participation, and involvement in high-profile conferences—

FreeTwinEV has successfully shared insights, fostered collaborations, and driven innovation within its field.

The project has made significant progress in communication activities, with the website exceeding its KPI targets (2300 unique visitors against a target of 100; 6,400 page views against a target of 1,000). The Knowledge Hub has been redesigned with improved accessibility and a simplified registration process. The social media strategy has been formalized through a communication committee led by ADDSEN, with defined content categories and a schedule of weekly posts on LinkedIn. The exploitation approach further ensures that project outcomes will be accessible and useful, not only for researchers and industry stakeholders but also for policymakers, students, and the general public.

In line with EU policies and Horizon Europe's goals, this deliverable demonstrates FreeTwinEV's commitment to creating lasting impact and contributing to the advancement of digital twin technology in sustainable and safe electric vehicle development. With 9 publications, 4 podcast appearances, and active participation in international conferences, the project is well on track to meet and exceed its dissemination, communication, and exploitation targets by the end of the project. Part of the exploitation will be carried out beyond the end of the project.

The project team remains committed to transparent, impactful, and inclusive dissemination and communication practices throughout the remaining project lifecycle.