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FASTEST

Fast-track hybrid testing platform for the development of battery systems

Deliverable D8.2: Data Management Plan

Primary Author [Bruno Rodrigues]

Organization [ABEE]

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Project Coordinator:	Bruno Rodrigues | ABEE (bruno.rodrigues@abeegroup.com)

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Name	Organization	Date
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Marco Rodrigues	INEGI	28/11/2024
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Project Abstract

Current methods to evaluate Li-ion batteries safety, performance, reliability and lifetime represent a remarkable resource consumption for the overall battery R&D process. The time or number of tests required, the expensive equipment and a generalised trial-error approach are determining factors, together with a lack of understanding of the complex multiscale and multi-physics phenomena in the battery system. Besides, testing facilities are operated locally, meaning that data management is handled directly in the facility, and that experimentation is done on one test bench.

The FASTEST project aims to develop and validate a fast-track testing platform able to deliver a strategy based on Design of Experiments (DoE) and robust testing results, combining multi-scale and multi-physics virtual and physical testing. This will enable an accelerated battery system R&D and more reliable, safer and long-lasting battery system designs. The project's prototype of a fast-track hybrid testing platform aims for a new holistic and interconnected approach. From a global test facility perspective, additional services like smart DoE algorithms, virtualised benches, and Digital Twin (DT) data are incorporated into the daily facility operation to reach a new level of efficiency.

During the project, FASTEST consortium aims to develop up to TRL 6 the platform and its components: the optimal DoE strategies according to three different use cases (automotive, stationary, and off-road); two different cell chemistries, 3b and 4 solid-state (oxide polymer electrolyte); the development of a complete set of physic-based and data-driven models able to substitute physical characterisation experiments; and the overarching DT architecture managing the information flows, and the TRL6 proven and integrated prototype of the hybrid testing platform.

LIST OF ABBREVIATIONS, ACRONYMS AND DEFINITIONS

Acronym	Name
BOM	Bill of materials
C	Mechanical designs
CL	Contact lists
EC	European Commission
ED	Experimental data
DEM	Hardware prototypes
DMP	Data Management Plan
DoE	Design of Experiments
DOI	Digital Object Identifier
DT	Digital Twin
FAIR	Findable, accessible, interoperable and reusable
GDPR	General Data Protection Regulation
IP	Intellectual-Property
M	Models
ME	Marketing and exploitation data
NDA	Non-Disclosure Agreement
S	Electronic designs

SW	Software outputs
WP	Work Package

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1. Executive summary

This report details the foundational Data Management Plan (DMP) for the FASTEST project, supported by the European Union's Horizon Europe Research and Innovation Programme under Grant Agreement number 101103755. The DMP's primary function is to offer a comprehensive summary of all the datasets that are collected, created, and disseminated throughout the project.

Additionally, it outlines the data management strategies adopted by the FASTEST consortium for these datasets. The DMP in its initial form sets out the data's status whether collected, processed, or generated, along with the methodologies and standards employed. It also addresses the potential for data sharing and openness, as well as the strategies for data curation and preservation by the Consortium.

The preliminary version of the DMP establishes a broad framework and methodology for managing data within FASTEST, covering both administrative and technical aspects of data management. This encompasses policies on managing data according to FAIR principles (Findable, Accessible, Interoperable and Reusable). As the project progresses, the DMP will undergo periodic revisions. These updates will not only refine the policy components but also provide augmented details regarding the datasets that are being gathered and generated within the FASTEST project.

2. Objectives

The aim of this document is to outline a broad strategy for managing research data throughout the FASTEST project and beyond its completion. It will detail the type of data to be gathered, processed, and produced, determine the public accessibility of this data, and explain the methods for data care and conservation, even post-project. While this document offers the initial Data Management Plan, it will undergo regular updates during the project, culminating in a finalized version by the project's conclusion.

3. Introduction

The FASTEST Data Management Plan provides internal guidelines aimed at enhancing and optimizing access to the large volume of data anticipated from all project segments and tasks. As a result, D8.1 is an outcome of "Task 8.5 Data Management". It has been revised in D8.2 "Data Management Plan Update 1" (M18) and it will provide a final version in D8.3 "Data Management Plan Update 2" to ensure all research data is easily findable, accessible, interoperable and reusable.

4. Data management plan

This section outlines the Data Management Register Tool used in FASTEST, highlighting its role in the collection, documentation, and maintenance of data. It

features a dynamic register for ongoing updates, guidelines for new Intellectual Property Data, and a classification of anticipated data types. The plan also includes a metadata management framework addressing data reference, ownership, contributors, and confidentiality, ensuring efficient and secure data management adaptable to the project's changing needs.

4.1. Data Management Plan on FASTEST

This section details the approach implemented in FASTEST to obtain a complete overview of the data generated during the project's duration. For clarity, based on the content of this section, the current status of all data identified in the Data Management Register is presented under "RESULTS" in **Erro! A origem da referência não foi encontrada.**, labelled "FASTEST Data Management Register Tool."

4.1.1. Data Management Methodology

To ensure organized management of data sets produced during the project, all generated data have been recorded and documented in the "Data Management Register tool" of FASTEST, located on the project's SharePoint.

a) This register functions as a dynamic record. It is continuously updated and filled in by project partners. Access to this register is available via the FASTEST SharePoint web platform. On the subsequent page, a visual representation of the Data Management Register Tool is provided.

b) Prior to logging a new Intellectual Property Data Item, communication must be made to the administrative coordinator (SIE), the technical coordinator (ABEE), and any partners implicated in its creation (if any).

c) Subsequently, the data proprietor may enter the new IP-Data into the Data Management Register Tool. Upcoming sections detail the necessary metadata for inputting a new IP Data item.

4.1.1.1. Data type and how to reference

Within FASTEST, a diverse array of data types is under production, and these are collected using the Data Management Register Tool. Below is a list of currently recognized data types and their respective shorthand notations. As the project evolves, additional data types might emerge, necessitating the creation of new acronyms.

Recognized Data Types (with their shorthand notations) as of now:

- **Experimental data (ED)**: Arising from any lab experiment. The format and magnitude of this data will vary based on the individual data recording tools of each lab and the specifics of the test.

- **Models (M)**: This includes algorithms, simulations, data models from databases, scripts, or coding, contingent upon the developmental platforms employed.

- **Data associated with design**, such as:
  - **Electronic designs (S)**: Schematic representations, diagrammatic blocks, BOM (bill of materials), and the like.
  - **Mechanical designs (C)**: 3D renderings, CAD drafts, etc.

- **Hardware prototypes (DEM)**: Their digital representation will be maintained through the provision of relevant descriptive metadata and documentation, accessible in the project website's results segment.

- **Software outputs (SW)**: Programs developed under the project's framework.

- **Contact lists (CL):** External contact lists used for dissemination and external communication with stakeholders.

- **Marketing and exploitation data (ME):** Data collected and processed for marketing and exploitation purposes.

Other document categories like deliverables or academic articles aren't encompassed by the above data classifications. The former possess unique references and identifiers as stipulated in the project Grant Agreement, while the latter are assigned their own Digital Owner Identifier (DOI) and are considered under Dissemination efforts.

4.1.2. Metadata in Data Management Register Tool

1. Reference: Every dataset will be designated a specific reference based on its Data Category, WP & Task, Data Sequence, and Sub-data Sequence.

Data Number and Sub number

Data Type:

- WP, Task (and any subtask, when applicable): each kind of data will be associated with a specific WP, task (and subtask when relevant) where it

originates.

- Data Number: this is given in a consecutive manner, pointing to the count of datasets of a certain data type produced within a particular WP and specific Task. All datasets of identical type within a distinct Task should share the same Data Number, with differences marked only by the Sub-data Number (elaborated further below).

- Data Sub number: This differentiates datasets within the same category that share the same Data Number, originating from a specific WP and Task. Its identification only takes place post-data creation.

Examples of References:
DataType_WP.Task(.Subtask)_DataNumber_DataSubnumber.

▪ ED_8.1_1_1 (Experimental Data, generated in WP 8, Task 1, from capacity test, pertaining to the cell 1).

▪ ED_5.2_1_8 (Experimental Data, generated in WP 5, Task 2, from capacity test, pertaining to the cell 8).

▪ ED_2.2_2_21 (Experimental Data, generated in WP 2, Task 2, from degradation test, pertaining to cell 21).

2. Title: The name given to each IP Data Entry.

3. Data proprietor: The primary holder of the IP Data Entry. Joint ownership is only permissible when properly clarified in Column 6 (Dataset Origin) and Column 9 (Data Application). Shared ownership IP Data requires an NDA (Non-Disclosure Agreement) by the end of the project.

4. Contributing Partner: All those who played a role in crafting the IP Data Item.

5. Creation Date: The project month when the data is anticipated to be produced.

6. Dataset Origin: Pertains to the Partner(s) supplying the data essential for the IP Data Item and/or the WP where it originates.

7. Purpose: Reason for the IP Data item.

8. **Format**: Physical for DEM items. For digital entries, it varies based on the software utilized.

9. Data Application: Relevant only during the project's duration.

10. Confidentiality: CONFIDENTIAL/SENSITIVE (SEN data treats by FAIR data principles).

4.1.2 Data collection

The process of gathering data in a project varies based on the nature of the data produced, the informational needs contributed by partners for effective project execution, and the approaches for securing, storing, and accessing the data. Consequently, it is essential to meticulously collect the relevant metadata for each dataset in **Erro! A origem da referência não foi encontrada.** of the Data Management Register Tool for the FASTEST project. This task is executed manually. Data acquisition occurs through this Excel file, as outlined in Deliverable D8.1, "Data Management Plan" of the FASTEST project.

5. FAIR DATA

This segment outlines the application of FAIR data principles within the FASTEST project. FAIR is an acronym for Findable, Accessible, Interoperable, and Reusable, adhering to the GO-FAIR guidelines.

The primary objective of these principles is to improve the utilization of SENSITIVE (NON-CONFIDENTIAL) data globally, fostering more efficient and extensive use of technical and scientific accomplishments. This approach is designed to optimize the use of resources, thereby preventing the redundancy of economic expenditures.

5.1. Making Data Findable, including Provisions for Metadata

The foundation of achieving FAIR data within FASTEST lies in the development of comprehensive metadata, which enhances the findability and discoverability of data. Consequently, additional fields might be introduced in the Data Management Register Tool throughout the project. Data identification is facilitated using the "Reference" field. The purpose of the reference is to ensure each data piece's uniqueness.

Within the SharePoint of the project, various data types are already categorized into specific fields like deliverables and publications. The data register tool will be situated in SharePoint, in a section akin to those designated for project deliverables and publications. This arrangement allows it to be a dynamic resource, accessible for consultation and updates by project partners.

Furthermore, as the volume of data generated in FASTEST expands, there is a provision for adding more fields in the tool. This approach ensures scalability and adaptability in data management.

5.2. Making Data Openly Accessible

Within the FASTEST project, all participating entities are encouraged to engage in dissemination efforts using data that is neither sensitive nor confidential. Data intended for public access will be showcased on the FASTEST website. Despite this, a significant portion of the data utilized in the project is sensitive and will be carefully evaluated for potential public release.

As stipulated in the Grant Agreement regarding "Open access to scientific publications," every participant is obligated to provide open access to scientific publications connected to their project results.

The project dictates that all dissemination materials must feature specific acknowledgements. These include recognition of funding from the European Union's Horizon Europe Green Research and Innovation program (under grant agreement No 101103755), display of the EU emblem, and a disclaimer absolving the European Climate, Infrastructure and Environment Executive Agency (CINEA) of responsibility for the document's content.

Finally, details of all dissemination activities undertaken in the project will be meticulously documented in the "Dissemination Activities" database located on SharePoint. This ensures a comprehensive record of outreach and communication efforts associated with the project.

5.3. Making Data Interoperable

Achieving interoperability in the FASTEST project hinges on the effective utilization of metadata. Enhanced interoperability is attainable through the adoption of appropriate metadata standards, methodologies, and naming conventions.

To facilitate and augment inter-disciplinary interoperability of (meta)data sets, the project will employ widely recognized ontologies and a universally applicable language, such as English.

Recognizing that this is an evolving process, any improvements identified during the course of the project may be incorporated into the Data Management Plan (DMP) as necessary. This approach allows for continuous refinement and adaptation of the project's data management strategies.

5.4. Increase Data Re-Use

In the context of the FASTEST project, each dataset's potential for re-use is systematically evaluated in the Data Management Register Tool, specifically within

Erro! A origem da referência não foi encontrada.Erro! A origem da referência não foi encontrada.. This assessment hinges on the dataset's "Confidentiality" classification:

- Datasets labeled as "Confidential" are considered not suitable for re-use.
- Those marked as "Public" are identified as reusable.

It's important to note that, as per the Consortium Agreement binding all FASTEST participants, data generated and shared in the project is initially presumed to be confidential. However, reflecting the project's collaborative ethos and the academic orientation of certain partners, specific datasets intended for dissemination will be created as re-usable. The designation within the "Confidentiality" field in the Data Management Register Tool is instrumental in pinpointing which data, generated over the course of the project, can be reused.

6. Allocation of Resources

Activities encompassing data generation and handling in the FASTEST project are included in the direct personnel costs, aligning with the person-month allocations for each partner.

For long-term data preservation, SharePoint will serve as the storage medium for up to five years after the project concludes. Beyond this period, the data will remain accessible to all partners via alternative arrangements, consistent with the terms outlined in the Consortium Agreement.

7. Data Security

The FASTEST project is committed to diligently safeguarding its data, products, and services from unauthorized access or usage. This includes implementing comprehensive protection measures.

The responsibility for ensuring data security primarily rests with the individual partners. They are responsible for securely housing all shared, processed, and operational data within their premises. Access to this data will be strictly limited to authorized personnel within the project consortium. In instances where data needs to be transmitted between partners, it must be done through secure means. This could include encrypted data channels, secure digital transfer methods, or, in some cases, physical transportation of data. The use of SharePoint for such purposes is highly recommended.

Regarding data stored on the project's web-based repository, SharePoint, security measures are inherently provided by the platform. These include robust protection

against unauthorized access, consistent with current industry standards. Security features such as firewalls and authentication protocols are in place.

For more information on this topic, please refer to Deliverable 1.2, "Definition of data management and communication architecture," Section 4.3.2, "Data security and privacy," and Deliverable 1.3, "Requirements and Specifications for Digital Twins," Section 6.3, "Security."

8. Ethical and Legal Aspects

In terms of ethical considerations, the FASTEST project does not anticipate any ethical issues stemming from its research activities.

From a legal standpoint, the management and sharing of data within FASTEST are governed by the stipulations of Article 4.4 of the FASTEST Consortium Agreement, agreed upon by all participating entities. This necessitates a thorough review of data before sharing or making it accessible, ensuring that no confidentiality issues arise as per the communication and dissemination plans devised for each dataset.

It is also crucial to recognize that the approach to ethical and legal matters in FASTEST will be subject to adjustments in response to any alterations in the project's scope and context.

9. Ethical aspects

The FASTEST project is committed to upholding the highest standards of ethics and data protection, as outlined in Article 14 of the General Agreement. This commitment encompasses adherence to fundamental ethical principles, including research integrity, and unwavering respect for core EU values such as human dignity, freedom, democracy, equality, and human rights.

GDPR: The Cornerstone of Data Protection

Recognizing the importance of safeguarding personal data, FASTEST prioritizes compliance with the EU General Data Protection Regulation (GDPR). While national data protection laws may apply in specific instances, GDPR serves as the overarching legal framework for data protection within the project.

GDPR empowers EU citizens with control over their personal data and sets a new standard for organizational data management. Its seven key principles provide a roadmap for responsible data handling:

1. Lawfulness, Fairness, and Transparency: Data processing must be conducted lawfully, fairly, and transparently, ensuring that data subjects understand how their information is being used.
2. Purpose Limitation: Data must be collected and processed solely for the legitimate purposes specified to the data subject.
3. Data Minimization: Only the data strictly necessary for the specified purposes should be collected and processed.
4. Accuracy: Personal data must be maintained accurately and kept up to date.
5. Storage Limitation: Data should be stored only for as long as necessary for the specified purpose.
6. Integrity and Confidentiality: Data processing must be conducted with integrity, ensuring security and confidentiality.
7. Accountability: The data controller is responsible for demonstrating GDPR compliance.

Understanding Personal Data in the GDPR Context

Personal data encompasses any information that can identify an individual, including names, identification numbers, location data, and IP addresses. Notably, GDPR's definition extends to pseudonymized data, where identifiers have been removed or replaced but can still be linked to an individual.

Key GDPR Requirements for the FASTEST Consortium

To ensure GDPR compliance, the FASTEST consortium adheres to the following crucial provisions:

- Valid Consent: Consent for data processing must be freely given, specific, informed, and unambiguous. Requests for consent must be presented in clear, understandable language, avoiding complex legal jargon.
- Territorial Scope: GDPR applies when processing the personal data of data subjects in the EU, regardless of where the data controller or processor is located.
- Data Subject Rights: GDPR grants data subjects a comprehensive set of rights:
- Breach Notification: In the event of a data breach that poses a risk to individual rights and freedoms, notification must be made within 72 hours of becoming aware of the breach.
- Right to Access: Data subjects can request confirmation of whether their data is being processed, access their data, and receive an electronic copy free of charge.
- Right to Rectification: Data subjects have the right to have inaccurate personal data corrected.
- Right to Restriction of Processing: Data subjects can restrict the processing of their data under certain circumstances.

- Right to Data Portability: Data subjects can receive their data in a structured, machine-readable format for transfer to another controller.
- Right to Erasure ("Right to be Forgotten"): Data subjects can request the deletion of their personal data under specific conditions, such as when the data is no longer necessary, or consent is withdrawn.
- Privacy by Design: Data protection must be integrated into the design of systems from the outset, ensuring data minimization and appropriate access controls.
- Right to be Informed: Data subjects must be informed about the collection and use of their data, including the purpose, retention period, and recipients of the data. This information must be provided clearly and concisely.

Checklist for Compliance

To ensure compliance with GDPR's "Right to be Informed," the consortium follows a comprehensive checklist:

- Provide clear and concise private information to individuals at the time their data is collected.
- When obtaining data from third parties, provide privacy information to the individual within one month.
- If using data for communication, provide privacy information no later than the first communication.
- Use plain language and avoid legal jargon in privacy information.
- Employ user-friendly techniques for delivering privacy information, such as layering, dashboards, and just-in-time notices.
- Conduct user testing to ensure the effectiveness of privacy information delivery.
- Regularly review and update privacy information.
- Inform individuals of any new uses of their personal data before commencing processing.

By adhering to these principles and guidelines, the FASTEST project demonstrates its unwavering commitment to ethical research practices and the protection of personal data.

10. Evolving data management and sharing practices in the FASTEST project

The FASTEST project remains committed to open science and transparent research practices. Following the M18 data management update, the project has refined its

approach to utilizing ZENODO, incorporating valuable feedback and lessons learned.

FASTEST partners now provide richer and more standardized metadata for all research outputs deposited in ZENODO, including detailed descriptions of data collection methods, software used, and any relevant ethical considerations. This enhanced metadata improves the discoverability and reusability of research outputs. Partners are also encouraged to share early versions of their research outputs, such as preprints and preliminary datasets, in ZENODO. This promotes early collaboration and feedback, fostering a more iterative and transparent research process. ZENODO is now more closely integrated with individual partner data management plans. This ensures that data sharing practices are aligned with project-wide data management goals and FAIR (Findable, Accessible, Interoperable, Reusable) principles. FASTEST partners are actively utilizing ZENODO's version control features to track changes and updates to research outputs. This provides a clear and transparent record of the research process, facilitating collaboration and ensuring data integrity. The project has increased its engagement with the ZENODO community, participating in discussions, providing feedback, and contributing to the platform's development. This fosters a collaborative environment and ensures that FASTEST data sharing practices align with best practices in open science.

FASTEST project partners continue to utilize ZENODO for depositing a diverse range of research outputs, including publications, datasets, software, presentations, posters, and other research materials, providing a comprehensive overview of project activities and findings. All research outputs remain openly accessible in ZENODO, complying with Horizon Europe's open access mandates and promoting global knowledge sharing. Detailed metadata and contextual information accompanying research outputs enable others to understand and potentially reproduce the research, contributing to research integrity and transparency. ZENODO's platform continues to support collaboration within the FASTEST consortium and with external stakeholders, fostering a vibrant research community. ZENODO ensures the long-term preservation and accessibility of FASTEST research outputs, safeguarding valuable project findings for future use.

By adapting its approach to ZENODO based on ongoing experience and feedback, the FASTEST project demonstrates its commitment to continuous improvement in open science and data sharing practices. This ensures that the project's valuable research outputs are disseminated effectively, maximizing their impact and contributing to the advancement of knowledge.

10.1 List of deliverables uploaded to ZENODO and publicly available

To ensure accessibility and dissemination, all public deliverables associated with the FASTEST project will be archived in ZENODO. A list of currently available deliverables can be found in Table 1.

Table 1 - List of deliverables published in ZENODO

Deliverable	Delivery Title	Published by:	ZENODO Link	DOI Link
D1.3	Specifications, requirements and use cases definition	Marco Rodrigues (INEGI)	https://zenodo.org/records/14001414	https://doi.org/10.5281/zenodo.14001414
D3.1	Multiscale high fidelity modelling paradigm for physical testing virtualization	Alvaro Anquela (ABEE)	https://zenodo.org/records/14161018	https://doi.org/10.5281/zenodo.14161018
D4.1	Safety and reliability AI-powered battery toolchain architecture and framework design	Foad Gandoman (RSTER)	https://zenodo.org/records/14161340	https://doi.org/10.5281/zenodo.14161340
D5.1	Twin Ontology Definition and Data Asset Mapping	Mannin Himanshu (RSTER)	https://zenodo.org/records/14161387	https://doi.org/10.5281/zenodo.14161387
D6.1	Resource scheduling concept	Christian Ramones (FEV)	https://zenodo.org/records/14161472	https://doi.org/10.5281/zenodo.14161472
D7.1	Dissemination and Communication plan	Daniel Matilla (SIE)	https://zenodo.org/records/14162653	https://doi.org/10.5281/zenodo.14162653
D8.1	Data Management Plan	Alvaro Anquela (ABEE)	https://zenodo.org/records/14162672	https://doi.org/10.5281/zenodo.14162672

11. Project data summary (M18)

In this section, the tool's structure is outlined in the provided **Erro! A origem da referência não foi encontrada.**, which is based on the anticipated outcomes from the various tasks undertaken in the project. It's important to highlight that this Register does not include all document types; specifically, deliverables and scientific publications are not covered within the data types listed and are thus excluded from the Data Management Register Tool. As the project progresses, **Erro! A origem da referência não foi encontrada.** will be subject to regular updates and revisions to ensure it accurately reflects the ongoing developments and changes. Moreover, with each update of this deliverable, **Erro! A origem da referência não foi encontrada.** will be included, now expanded to contain all the information that has been collected, providing a comprehensive and updated overview of the data management in the FASTEST project.

Table 2 - FASTEST Data Management Register

Reference	Title	Data Propietor	Contributing partner	Creation Date	Dataset Origin	Purpose	Format	Data Application	Confidentiality
M_3.1_1	Thermal Model	MGEP	UL, ABEE	M18	MGEP + Partners activities withing WP3 Task 1	Assessment of degradation of battery in function of use	TBD	T2.2, T2.3, T2.4, WP4, WP5, WP6	Confidential
M_3.1_2	Degradation Model	UL	MGEP, IKERLAN, ABEE	M24	UL + Partners activities withing WP3 Task 1	Modelling degradation phenomena	TBD (.txt, .csv or any other human readable format)	T2.1, T2.2, WP4, WP5, WP6	Confidential
RDA_ 1.1	Off-road (Industrial) Utilization Dataset	FLBT	None	M4	FLBT DataCenter Platform	Modelling degradation patterns	JSON (Mongo)	T1.1, WP1 + OTHERS (TBD)	Confidential
DEM_6.6	HIL BMS test	IKERLAN	INEGI, RSTER, FEV, FM, ABEE, SURREY	M36	IKERLAN test equipment	Validation	TBD	T5.4 + T6.5	Confidential
ML_7.1_1_1	Mailing List	SIE	All	M1	Consortium and subscribers	Communication	Hosted in Mailchimp (newsletter software)	T7.1	Confidential

ME_7.3_1_1	Marketing, Exploitation and IP Management Database	SIE	All	M1	Consortium and secondary sources	Exploitation and IPR	.xlsx / .txt / .docx / .pptx	T7.3	Confidential
FD_8.2	Financial statements partners	SIE	All	M6	Consortium partners	Financial track and reporting	.xlx	T8.2	Confidential
ED_5.4	Data from experiments (virtual, physical)	COMAU	All	M32	Virtual / physical tests	Digital Twin integration validation	TBD	T5.3-5.4	Confidential
M_5.2_1	Digital Twin models definition	INEGI	INEGI, COMAU	M22	Partners activities within the development of T1.4, the development of models and toolchains in WP3 and WP4, and activities within T5.2.	Construction of the Digital Twin models and integration with the required supporting modules (prediction/ simulation)	TBD	WP5, WP6	Public
DOE_2.2	Intelligent use case specific DoE algorithms	FHG	Partners in WP2	M24	FhG + Partners activities in WP2	Development and Validation of DoE algorithms for the different use cases	TBD	WP3, T6.3	Confidential

M7_D4.1 and D4.4	Safety models and safety tests	RSTER	ABEE, RSTER, FM, VTT	M28	RSTER+ Partners activities withing WP4 Task 1 and 4	Modelling battery safety assessment (FM, ABEE, VTT test equipment)	TBD	WP4, T4.1 and T4.4	Confidential
ED_6.5_1	Test status, metrics, procedures and models	FEV.io	FEV.io, INEGI, COMAU, FLBT, FhG	M14	FEV + partners activities within WP2, WP3, WP5	Central hub for message forwarding and logging test results between partners during virtual and physical tests	messages during publish/subscribe= JSON database: MySQL	WP2 and WP5	Confidential
TTP_ 1.4_1	[Module/ Cell Level] Test Characterizing Parameters	FLBT	None	M8	FLBT Characterization protocol	Industrial use case modelling	Excel table	T1.4, WP1 , WP2	Confidential
TTP_ 1.4_1	[Pack Level] Testing procedure	FLBT	None	M8	FLBT Testing protocol	Industrial use case modelling	Excel table	T1.4, WP1 + WP5 (TBC)	Confidential
TTP_ 6.1	End of Line Testing Phases	FLBT	None	M5	FLBT EOL Testing protocol	Industrial use case modelling	Data table	T6.1	Confidential

12. Conclusion

This report outlines the FASTEST project's comprehensive data management strategy, detailing procedures for data collection, processing, preservation, and security. It also emphasizes the project's commitment to open science principles and responsible data exploitation.

Data Management for Enhanced Research

Effective data management is crucial to the success of the FASTEST project. Our strategy ensures that data is collected meticulously and utilized consistently throughout the project lifecycle and beyond. By standardizing data practices, we promote efficiency, collaboration, and the long-term value of our research outputs.

Key Exploitable Results (KERs) and Beyond

The FASTEST project will generate valuable Key Exploitable Results (KERs) with potential for significant impact. Our data management strategy considers the consortium's interests, intellectual property rights, and the broader research landscape to ensure responsible and ethical exploitation of these results.

Open Science and Data Accessibility

The FASTEST project champions open science principles, promoting transparency and collaboration within the scientific community. Our data management strategy incorporates clear protocols for open access to research data and findings, maximizing the impact and reach of our scientific contributions.

Guiding Principles of our Data Management Strategy

- **Data Quality:** We prioritize the collection of high-quality data through rigorous methodologies and standardized procedures.
- **Data Security:** Robust security measures are implemented to protect sensitive data and ensure compliance with relevant regulations.
- **Data Preservation:** We ensure the long-term preservation and accessibility of research data through appropriate archiving and data management practices.
- **Open Access and Sharing:** We promote open access to research data and findings whenever possible, facilitating collaboration and knowledge sharing.
- **Ethical Considerations:** Our data management strategy adheres to ethical guidelines and best practices, ensuring responsible use and exploitation of research data.

This data management strategy provides a roadmap for the FASTEST project, guiding our efforts to generate, manage, and exploit valuable research data. By

adhering to these principles, we ensure the integrity, accessibility, and impact of our scientific contributions.

13. References

[1] Grant Agreement No. 101103755 – FASTEST

[2] FASTEST Consortium Agreement