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Zero Emission electric Vehicles enabled by haRmonised circularity

Deliverable 7.7

Innovation and Data Management Plan (DMP) with open science practices, gender dimension and ethics (Second version)

20 June 2025

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ZEvRA
Zero Emission electric Vehicles enabled by haRmonised circulArity

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Document history

Date	Version number	Summary of changes
20 June	V0	Initial draft document
30 June	V1	Revision version; Final

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ZEvRA project abstract

ZEvRA's main objective is to improve the circularity of light-duty EVs throughout their entire value chain, from materials supply and manufacturing to end-of-life (EoL) processes, which aligns with the European Union's goal of achieving zero CO2e emissions by 2035, particularly in the EV value chain. To do so, ZEvRA will develop a Design for Circularity (DfC) methodology and a holistic circularity assessment aimed at improving the production of electric vehicles (EVs) based on the 9Rs. This methodology will be validated by developing zero emission solutions for the most important automotive materials, covering > 84% material mix: steel, three versions of aluminium (wrought, casting, and foam), thermoplastics composites (long and continuous fibre-reinforced), unfiled/short fibre plastics, glass, tyres and Rare Earth Elements (REE). These solutions will be supported by a set of digital tools to support the manufacturing of the use cases, the assessment of circularity, traceability, and the virtual integration of components into a full replicable vehicle.

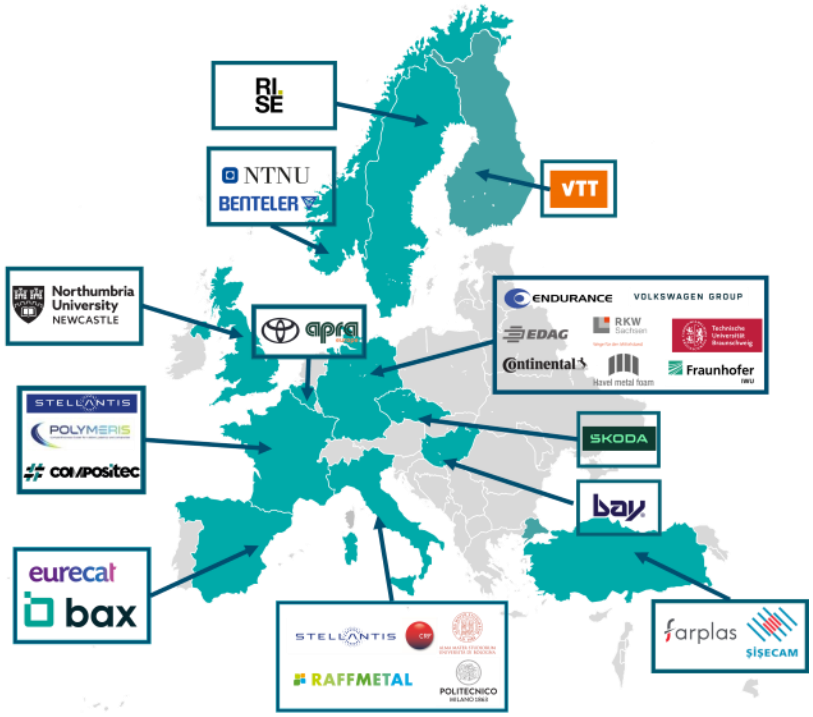

Figure 1: *ZEvRA Consortium*

To maximise the outreach of our methodology and zero emission solutions, ZEvRA will develop a dedicated training & upskilling programme for the automotive workforce and academia, together with activities aimed at increasing awareness & acceptability of the proposed zero emission solutions. Lastly, circular business models targeting EoL and logistics aimed at improving the economic feasibility of circularity in EVs are advanced. ZEvRA's innovations aim to improve zero emission approaches in the life cycle and value chain of at least 59% of European EVs by 2035 through the 5 OEMs and Tier 1's that are part of the consortium (see Figure 1) which includes industry and academia covering the entire automotive value chain.

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Abbrevations and Acronyms

[All abbreviations and acronyms used in this deliverable are listed here. Add more lines or delete unnecessary ones.]

Table 1: *Abbrevations and Acronyms*

Abbr.	Full name
EVs	Electric Vehicles
FAIR	Findable, Accessible, Interoperable, and Reusable
FEM	Finite Element Models
FRP	Fiber-Reinforced Polymer
GDPR	General Data Protection Regulation
IGES	Initial Graphics Exchange Specification
IP	Intellectual Property
ISO	International Organization for Standardization
JPEG	Joint Photographic Experts Group
LCA	Life Cycle Assessment
LCC	Life Cycle Costing
NDA	Non-Disclosure Agreement
OEMs	Original Equipment Manufacturers
OpenAIRE	Open Access Infrastructure for Research in Europe
PDF	Portable Document Format
PNG	Portable Network Graphics
PU	Public Use
REE	Rare Earth Elements
S-LCA	Social Life Cycle Assessment
SMEs	Small and Medium-sized Enterprises
STEP	Standard for the Exchange of Product model data
STL	Stereolithography
WP	Work Package
WPL	Work Package Leader
XML	eXtensible Markup Language

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Executive summary

The ZEvRA project generates a substantial amount of data, necessitating a robust Data Management Plan (DMP) to ensure effective data handling throughout the project's lifecycle. The First DMP, which is deliverable 7.6 laid the groundwork for ZEVRA´s compliance with FAIR principles (Findable, Accessible, Interoperable, and Reusable), Horizon Europe guidelines, and EU General Data Protection Regulation (GDPR), as well as data security, Gender Dimensions, ethical considerations, and clear allocation of resources and responsibilities among partners. These sections are not repeated and if requested we refer the reader to the first deliverable (D7.6).

This DMP version describes the DMP improvements and results so far. It is structured into 4 chapters:

- Chapter 2 (Data Summary) Summarises for each of ZEvRA´s work packages an overview of the data to be collected, detailing the purpose, types, formats, origin, expected volume, and potential stakeholders.
- Chapter 3 (Open science practices) Describes what has been done during the first year of the project with regards ZEVRA's results and outcomes.
- Chapter 4 (Allocation of Resources) Estimates the resources needed and identifies data management responsibilities.
- Chapter 5 (Conclusion) summarizes the DMP and outlines forthcoming steps regarding data control and the project's data management plan.

This DMP is essential for maintaining data integrity, security, and accessibility in the ZEvRA project. By adhering to the outlined protocols, the project aims to ensure that all data-related activities are conducted in a secure, ethical, and efficient manner, supporting the overall success and sustainability of the project.

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1 Introduction

This deliverable, D7.7, presents the updated Data Management Plan (DMP) for the ZEvRA project, following up on the initial version provided in Deliverable 7.6. The ZevRA project generates a considerable volume and variety of data across its work packages, requiring a structured and responsive approach to data governance. The initial DMP laid the foundation for compliance with FAIR principles—ensuring data is Findable, Accessible, Interoperable, and Reusable—as well as alignment with Horizon Europe data management requirements, the EU General Data Protection Regulation (GDPR), and ethical, gender, and security considerations. No content from D7.6 is repeated here; readers are referred to that document for the baseline framework[1].

The objective of this deliverable is to document the evolution of data management practices within ZEvRA after the first year of implementation. It provides a status update on data handling procedures, ongoing challenges, and enhancements made in terms of open science, resource allocation, and partner responsibilities. This aligns with the broader goals of Work Package 7 (WP7) on "Project Management and Communication," which ensures effective coordination, reporting, dissemination, and responsible data stewardship throughout the ZEvRA lifecycle.

This deliverable is structured into four main chapters. Chapter 2 offers a Data Summary, highlighting the types, sources, formats, and purposes of data collected across each ZEvRA work package, as well as relevant stakeholders. Chapter 3 focuses on open science practices, showcasing how ZEvRA has implemented openness, transparency, and accessibility in its research outputs. Chapter 4 details the allocation of resources and outlines roles and responsibilities related to data handling. Finally, Chapter 5 provides a conclusion and the next steps regarding the continuous refinement and implementation of the data management plan.

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2 Data Summary

This chapter aims to explain the data that has been collected by the end of May 2025, and describe the characteristics of the data and the expected volume. Most of the information is already described in D7.6, and thus tables describing data objectives, data to be re(used), types and formats, anonymization and data utility are not repeated here. Also, the Dublin core standards are not repeated.

Through the technical activities, a significant amount of data has been collected and is shared between the partners involved. Following the formatting that has been described in D7.6. Each task leader has decided which format (doc. STEP (.stp), DRAW (.dmg) IGES (.igs), and STL (.stl)) is most suitable for each data objective. All files that are to be shared to the public in the course of the project have been subjected to proper metadata and have been developed in easy to share formats, mostly PDF. Since most technical activities are still largely under development, most work-in-progress documents are shared between task participants through the ZEvRA Microsoft SharePoint, unless protected via NDA, in this case, documents are shared strictly between partners.

In ZEvRA, many technical activities require direct input from the consortium. Therefore, confidentiality criteria must be respected at all times. In the initial input-gathering round of the DMP, all members of the consortium were asked to indicate which data they would like to be treated confidentially and which data could be shared with third parties. These preferences have been updated in March 2025 and are described in Tables 2 and 3.

The collection of data through activities, meetings, electronic communication, questionnaires, etc., has be conducted in each work package and task. The task leaders have overseen this organization of data and have reported to the coordinator and to the DMP leader (BAX) when there were issues that could not be solved directly between task participants. To make sure the task leaders were able to provide partners with a clear understanding of how to utilize, share, work with, and fill in the data promptly, 2 workshops have been hosted, which are further described in Chapter 4. Data collected from third parties was subjected to simple gathering methods, such as Google Forms, sheets, etc., to ensure timely and efficient data collection.

The data coming from social media statistics has been stored by the Project Coordinator on the Fraunhofer dashboard and updated periodically. ZEvRA stakeholders have been active on LinkedIn primarily. Both Quantitative (e.g., likes, number of post) as qualitative metrics have been stored in the dashboard.

Data collected from project events, such as workshops and stakeholder engagement events, has been gathered during the events and later on further processed to useable formats (documentation in notes, inputting data directly into PowerPoint presentations, utilizing live whiteboard practices like Miro, and conducting polls) needed for the deliverables.

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Data from journals/websites & other dissemination and communication channels will be collected through periodic monitoring as well. No official publications have been listed so far.

3 Open science practices

The use of OpenAIRE has been fully implemented within the ZEvRA project. All Work Package Leaders (WPLs) have been trained in using the platform and are now responsible for ensuring that the results of their tasks are correctly and timely published in the ZEvRA repository. This includes uploading relevant publications, datasets, and other research outputs in accordance with the agreed metadata standards and open access requirements. Open Science practices, as well as Research Data Management, are monitored every 3 months as part of the Innovation Board in T7.5.

In line with the data management procedures, arrangements have been made concerning access rights, licensing, and potential embargo periods. If any issues arise in the publication process, or if access to specific outputs cannot be arranged, WPLs are expected to report this as soon as possible to the DMP leader (BAX), so that appropriate support can be provided or mitigating actions can be taken.

These responsibilities and workflows have been communicated and agreed upon with all partners. This approach ensures consistency and long-term accessibility of ZEvRA outputs during and beyond the lifetime of the project.

Table 2. presents an updated overview of the data that is foreseen to be collected or generated during the project and made openly available via OpenAIRE. This version has been prepared during Year 2, following communication with the Work Package Leaders to assess the current status and planning of publishable documents.

In certain cases—particularly for outreach to the general public—selected data will also be made accessible through the project website (zevraproject.eu). The table remains non-exhaustive and will continue to be updated as the project advances.

Table 2: *Open-source data availability*

WP	Data	Date	Medium/format/other notes
1	Deliverables Electronic documents and presentations, including deliverables with a dissemination level: PU (Public) all related to: Final LCA, LCC and s-LCA and Circularity methodology	Immediate for public deliverables once they are approved by the EC.	OpenAire/Zenovo as medium, Final update Y3
2	Deliverables Electronic documents and presentations, including deliverables with a dissemination level: PU (Public) all related to the digital tools	Immediate for public deliverables once they are approved by the EC.	OpenAire/Zenovo as medium, Final update Y3

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3	Electronic documents and presentations, including deliverables with a dissemination level: PU (Public) all related to the final car concept, virtual twin and demonstrator	Immediate for public deliverables once they are approved by the EC. Confidential deliverables will not be available.	OpenAire/Zenovo as medium, Final update Y3
4	Electronic documents and presentations, including deliverables with a dissemination level: PU (Public) related to the use cases. KPI's for the evaluation of the solutions	Public deliverables will be available immediately once they are approved by the EC. Confidential deliverables will not be available.	OpenAire/Zenovo as medium, Final update Y3
5	Electronic documents and presentations, including deliverables with a dissemination level: PU (Public) related to training and awareness.	Repository of training material will become publicly available	OpenAire/Zenovo as medium, Final update Y3
6	Electronic documents and presentations, including deliverables with a dissemination level: PU Related to Dissemination, communication and exploitation. All communication material will be openly available	Public deliverables will be available immediately once they are approved by the EC.	OpenAire/Zenovo as medium, Final update Y3
7	Electronic documents and presentations, including deliverables with a dissemination level: PU Related to Dissemination, communication and exploitation. All communication material will be openly available	Public deliverables will be available immediately they are approved by the EC. Confidential deliverables will not be available. Email addressed will be used during the duration of the project.	European Commission audits can occur within 5 years after the project end No names or email addresses will be made public.

Data that cannot be shared through OpenAire and will only be available to the consortium through the Microsoft Teams platform is described below in Table 3. Some data will only be shared with certain partners under the protection of an NDA. For all data that could not be made openly available, a justification was submitted to the Project Coordinator, who reviewed and approved each case. Meanwhile, ZEvRA's data that will not be openly available for sharing will be deposited, together with their accompanying metadata, code, and documentation (if necessary)-to Microsoft Teams.

Table 3: *Sensitive data availability*

WP	Data	Consortium wide /between select partners	Remarks on sensitivity
1	Filled in life cycle inventories of partners	Consortium wide	Protected by NDA/IP rights
2	No sensitive data disclosed		updated in Y3
3	CAD designs of skoda enyaq baseline vehicle. Requirements of OEMs.	Consortium wide, sometimes only between selected partners	updated in Y3
4	CAD designs of components	Consortium wide, sometimes only between selected partners	updated in Y3
5	No sensitive data disclosed so far		updated in Y3
6	No sensitive data disclosed so far		updated in Y3
7	All personal information Metadata from Work packages Deliveables and presentations	Consortium wide	updated in Y3

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4 Allocation of resources

Data management responsibilities were previously assigned simultaneously with task responsibilities. WP and task leaders have been consistently notified by the DMP leader Bax to follow up on their data management, ethics, security and gender balance responsibilities. Workshops have been given in real life during project meetings, updating the consortium on how to prepare their outcomes according to FAIR principles and aligned with the DMP. Also, an online workshop was hosted by BAX to help all WP leaders set up their digital ZENOVO/OpenAire space, and to learn how to publish results according to the FAIR and DMP principles. All WP leaders attended the meeting (7 persons in total). Also, an online Template that acts as a guideline for metadata was shared.

Communicative rounds between work package leaders and the DMP leader have been taken place to make sure all expected outcomes are shared as was planned in the initial DMP round. Sometimes this led to additional NDA requirements, which have been picked up by task leaders and WP leaders under the supervision of the Project Coordinator.

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5 Final remarks

This deliverable presents the updated Data Management Plan (DMP) status as of June 2025 for the Horizon Europe project ZEvRA. As this is an intermediate update, information already covered in the initial DMP deliverable is not repeated here. The final update will be submitted in 2026 as Deliverable 7.8, which will include a complete and detailed overview of all datasets—both open and restricted—produced during the project.

At this stage of the project, many activities are still ongoing, and relatively few final results have been produced. As a result, partners have not yet published a significant volume of data openly. The DMP manager is fully aware of this status and is continuously monitoring the data output and sharing process across work packages.

The current concise nature of this deliverable reflects the project's natural timeline rather than a lack of attention to data management. The DMP manager will ensure that all outputs—whether open or closed—are properly tracked and reported in Deliverable 7.8, once the project reaches a more mature stage of completion.

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