



Zero Emission electric Vehicles enabled by haRmonised circularity

Deliverable 7.4

Risk Management Plan (2nd version)

31st December 2024



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Partners involved	Bay Zoltan (Leader
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Document history

Date	Version number	Summary of changes
12th December 2024	V1	Initial draft document
22th December 2024	V2	Improved draft document
31th December 2024	V3	Final version

ZEVR project abstract

ZEVR'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, ZEVR 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), unfilled/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: ZEVR Consortium

To maximise the outreach of our methodology and zero emission solutions, ZEVR 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. ZEVR'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 (Figure 1), which includes industry and academia covering the entire automotive value chain.

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Executive Summary

In the 7.3 (Quality and Risk Management plan 1st version) deliverable the project partners defined the process of quality and risk identification, assessment and evaluation implemented during ZEvRA project for ensure the consistent quality of all project outputs, in order to fully meet the commitments (objectives and deliverables) made in the Grant Agreement. The document includes the Risk Register initial version, with the identified risks, their possible affects, owners, ranking and measures to diminish the negative impacts.

The risk owners actualize the table every two month and the Technical Board monitoring those during its meeting.

Because during the first period of the project, the used process proved suitable and usable, there is no need to modify.

The up-to date Risk Register indicate the recent risks and respond plans to mitigate the identified risks.

1 Introduction

By the Project Management Plan (D 7.1) in WP7 Task 7.3 involves periodic Risk Management activities, which aim to identify, assess, and prioritize risks to minimize, monitor, and control the probability and/or impact of unfortunate events, also known as threats. Mitigation strategies and contingency plans will be developed to lessen the impact of risks that cannot be eliminated.

The Quality and Risk Identification Manager (QRM; Árpád Horánszky - Bay Zoltan) coordinate project risk management, update RMP, collect risk-related inputs from WP leaders every 3 months and present bi-monthly updates to the Technical Board (TB). Any identified risk will be addressed, and alerts will be raised if their priority increases. The QRM will monitor all activities related to risk management in collaboration with each WP leader for specific issues relevant to each WP.

The first version of the risk management plan was made till 30th April 2024 and is in line with the deliverable D7.3 risk management plan (first version), which will include an assessment with conclusions of the monitoring process. The plan will also outline the quality procedures used throughout the project. The second version of the risk management plan (this version) is to be published by December 31, 2024, in accordance with target D7.4. The final version of the risk management plan (D7.5) will be published in month 24.

The Work Package Leaders support the QRM in all matters to identify current and risks for future deviations and to develop countermeasures. (Project Management handbook 3.3)

2 Updated Risk Management Register

Index	WP	Description	Effects	Acute period (1-4)	Probability (1-10)	Impact (1-10)	Risk Rank	Owner	Response Plan	Status of response [%]
1	1	LCT approach (LCA, LCC, SLCA) does not show positive results consistently (i.e. LCA is positive, LCC is negative)	Could introduce uncertainty into the decision-making processes. Stakeholders may become skeptical in the application of circularity measures	2	5	3	Low	Violeta Vargas	To search and reach the best available and rational solutions. Inquire for: i) alternative sustainable materials and ii) more effective modified processing methods. The methodology will be refined to clarify impacts on different dimensions.	20
2	1	Reluctance of target groups to apply the circularity strategies	Ambition and expected impacts may not be reached to a high degree	1	5	4	Medium	Violeta Vargas	Emphasize the potential of the proposed solution focusing on their gains and market advantages vs. the current practice.	20
3	2	Delays in initial CAD model of project demonstrators	Delay in detailed design of the demonstrator and associated use cases	1	7	2	Low	Yvonne Aitomaki	Similar components will be used to test new models then the geometry is swapped out when the CAD is ready	70

4	2	Models not completed in time to provide data for demonstrator manufacturing	Inaccuracy in property prediction and additional costs due to greater testing effort in practical investigations	1	7	3	Medium	Yvonne Aitomaki	Preliminary results from the models will be obtained to provide input to the WP4, the models will be further developed with more accurate data as the demos are developed.	10
5	3	Not all components can be integrated into the demo vehicle due to restricting building spaces	Incomplete overall demonstrator and possible additional costs	2	4	5	Medium	Stefan Caba	Design of parts and components could be adapted so they fit the building space of the demo vehicle. Alternatively, additional prototypes with better integration capability are possible.	10
6	3, 4	The performance of the vehicle might be limited for the non-virgin components	Reduction of the project result and acceptance of the solutions for exploitation	2	6	4	Medium	Stefan Caba	Although this is not foreseen, there are numerous technical possibilities that would be explored to improve performance, and which will be considered in the strategy.	30
7	3, 4	The availability of molds is critical and may lead to delay	could cause delay or additional effort of toolmaking	2	4	5	Medium	Christian Hannes mann	We could possibly change the demonstrating parts. First molds found and collaboration with owners set.	30

8	4	Aluminium scrap availability is limited. Some is contaminated	extension of supplier range needed and drying/cleaning could be additionally needed	2	1	2	Low	Christian Hannemann	Partly change of sources (e.g., from auto to building). Additional cleaning steps if needed, initial selection of the sourced scrap. -> organized and automotive cycle is vision	30
9	4	Aluminium alloy composition not achievable	Extrudability and castability not achieved. Aluminium foam inhomogeneity	2	4	6	Medium	Christian Hannemann	Continuous analysis of mechanical properties, composition, and monitoring. Additional additives to improve extrudability, casting, foaming. Change of casting parameters. -> in current investigation	25
10	4	Performance mismatch due to high PCR content	requirements may not be fulfilled, source change needed	2	4	4	Medium	Christian Hannemann	Substituting certain portion of PCR with PIR. -> taken care for and tolerances defined + under current verification	25
11	5	Difficulties in attracting relevant stakeholders	Dissemination KPIs might be affected if stakeholders are not reached and engaged	2	4	5	Medium	Ricardo del Valle	All partners are already cooperating with many relevant stakeholders within their sectors and are part of several networks and clusters. The existing network of contacts will be enriched with the innovation manager.	25

12	5	Delay of awareness and educational execution and poor communication and clustering	Participation of companies and academic stakeholders in training materials might be affected if delays are present	2	3	6	Medium	Ricardo del Valle	Regular meetings will be held to enhance interactions with stakeholders. The implementation plans will be prepared and evaluated. In case of failure of the expected actions, the project management procedures will be reassessed.	
13	All	The size of the consortium makes it difficult to handle	Insufficient information for the partners involved, resulting in delays in project work	2	6	5	Medium	Daniel Nebel	A multi-level structure (WP7) is set up for managing finances, technical and innovation/exploitation aspects through dedicated boards that meet regularly. If needed, this will be reinforced.	50
14	All	A partner leaves the project	Delay in associated project work and related work as well as reduction in quality if taken over by a less suitable partner	2	3	4	Low	Daniel Nebel	Partners will try to assume the partner's responsibilities, tasks and resources. If that is not possible, a substitute partner with similar profile will be searched for.	50
15	All	Progress starting too late	Compression of work, resulting in poor delivery of outcomes and additional costs	1	4	4	Medium	Daniel Nebel	Create a project with stepwise progress, realistic timeline and resource estimates.	50