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GA No. 101137975

**Situationally Aware Innovative Battery Management  
System for Next Generation Vehicles**



**InnoBMS - Deliverable report**

**D6.2 - Initial business and exploitation plan, incl.  
financial models, knowledge management, IP strategy**



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#### Document History

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V1.1	2024/12/19	Bajenaru Ionut Sorin (BOSCH RO)	Second version after review, include GA info.
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#### Project summary

The core objective of InnoBMS is to develop and demonstrate (TRL6) a future-ready best-in-class BMS hard- and software solution that maximizes battery utilization and performance for the user without negatively affecting battery life, even in extreme conditions, whilst continuously maintaining safety. Concretely, the InnoBMS proposal will deliver a 12% higher effective battery pack volumetric density, a 33% longer battery lifetime and a demonstrated lifetime of 15 years. The results will be demonstrated using novel testing methods that give a 36% reduction in the testing time of a BMS. The results will be demonstrated in two use cases, one light commercial vehicle (Fiat Doblo Electric) and one medium-duty van (IVECO eDaily). The key outcomes will enable a cost reduction of 12% and 9.7% for passenger cars and light-duty vehicles, respectively. The core objective will be achieved through five technical objectives. 1) advanced hybrid physical and data-driven models and algorithms to enable a flexible and modular BMS suitable for a wide range of batteries. 2) Software for a fully connected and fully wireless BMS that acts as a communication server inside the vehicle E/E-architecture, the center of connection, on-board diagnostics and decision-taking for all battery-related information. 3) A scalable, fully wireless and self-tested BMS hardware that enables using different battery sizes at different operating voltage levels, and smart sensor integration. 4) Better battery utilization and exploitation using cloud-informed strategies and procedure. 5) A heterogeneous simulation toolchain and automated test methods.

## Publishable Summary

The **InnoBMS** project is all about creating a next-generation Battery Management System (BMS) that pushes boundaries. Our goal is simple: to make batteries last longer, perform better, and stay safe, even in extreme conditions. This aligns perfectly with the priorities set out in the **Grant Agreement (GA No. 101137975)**, where innovation meets sustainability in transportation.

### What We're Aiming For

We're on a mission to deliver batteries with a 12% higher energy density and 33% longer life, designed to last at least 15 years. To make this happen, we're using groundbreaking testing methods that can cut testing time by 36%. To prove it works, we'll showcase our solutions in two real-world examples: the Fiat Doblo Electric (a light commercial vehicle) and the IVECO eDaily (a medium-duty van). Not only will these innovations improve performance, but they'll also help reduce costs by 12% for passenger cars and 9.7% for light-duty vehicles, bringing tangible benefits to users.

### Listening to What's Needed

We've paid close attention to the specific "wants" identified in the Grant Agreement. These include:

- Developing modular and scalable BMS designs to support different battery types and sizes.
- Leveraging cloud technology for better diagnostics and predictive maintenance.
- Addressing the need for longer-lasting, more efficient batteries that perform reliably in real-world conditions.

Every part of this project is designed to meet these needs, ensuring that the final product not only meets expectations but exceeds them.

### How We're Innovating

Here are the key breakthroughs we're working on:

1. Smart models that combine physical and data-driven insights to create flexible BMS designs.
2. Fully wireless BMS solutions that integrate seamlessly with vehicle systems and act as communication hubs.
3. Modular hardware that adapts to various battery sizes and voltage levels.
4. Cloud-based strategies to get the most out of every battery, improving performance and lifespan.
5. Advanced simulation tools and automated testing methods to speed up development.

These innovations tackle real challenges and directly support the goals outlined in the Grant Agreement, bringing next-level capabilities to BMS technology.

### Wrapping It Up

By blending the requirements from the **Grant Agreement** with the practical "wants" of stakeholders, the **InnoBMS project** is set to deliver impactful results. Our focus is on creating real-world solutions that make a difference, driving innovation in the electric vehicle industry while keeping users and stakeholders at the heart of it all.

# 1 Acknowledgement

## 1.1 The consortium

The author(s) would like to thank the partners in the project for their valuable comments on previous drafts and for performing the review.

### Project partners:

#	Partner short name	Partner Full Name
1	VUB	Vrije Universiteit Brussel
2	TOFAS	TOFAS Turk Otomobil Fabrikasi Anonim Sirketi
3	BOSCH	Robert Bosch GmbH
4	AVL	AVL List GmbH
5	AVL-SFR	AVL Software and Functions GmbH
6	IDIADA	Idiada Automotive Technology SA
7	CID	Fundacion Cidetec
8	UL	Univerza v Ljubljani
9	THIL	Tajfun Hil Društvo sa Ograničenom Odgovornošću za Istraživanje, Proizvodnju, Rgovinu i Usluge Novi Sad
10	UNR	Uniresearch BV
11	FMF	FPT Motorenforschung AG
12	PTE	Potenza Technology Limited

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