Newsletter Y1

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2.1	2024-12-23	Medina Ćustić, ViF	Formal Review and Deliverable Release

Table of Contents

List of Figures

1. Executive Summary

This deliverable includes the first Newsletter for the GIANTS project. A total of four Newsletters planned to be released, one for each year.

The aim of the Newsletters is to present the yearly results to the public in a short and understandable manner. They will be published on the project's website and LinkedIn to maximize outreach.

This first Newsletter provides an overview of the GIANTS project (including a brief overview of the project itself, key facts, demonstrator vehicles and project partners). Additionally, it includes a brief overview of the GIANTS partner project, ZEV-UP, highlighting the work accomplished thus far, particularly in relation to Work Packages 2 and 3. The newsletter concludes with an outlook for Year 2.

Keywords: Dissemination, Newsletter, Project Overview, First Results, Partner Project, Demo Sites, EU-Project, Living Labs, Urban Mobility, HORIZON-IA

2. Introduction

To provide the public with an overview of ongoing R&D projects, various communication methods can be used. One effective approach is through newsletters, which are publicly accessible documents.

These newsletters are crafted in a clear and straightforward manner, ensuring that even individuals without extensive technical expertise can easily understand the content. GIANTS plans to publish an annual newsletter that summarises the year's accomplishments and offers a preview of goals and activities for the upcoming year.

The first GIANTS Newsletter provides a first overview of the project itself, its achievements so far with a focus on WP2 and WP3, and an outlook on the second project year.

3. First GIANTS Newsletter December 2024

3.1 The GIANTS project at a Glance

This chapter provides an overview of the project, including a short description, key facts, the consortium, the demonstrator vehicles and a short description of the partner project ZEV-UP.

3.1.1 About GIANTS

The GIANTS (Green Intelligent Affordable New Transport Solutions) project is an EU-funded project of the action HORIZON-IA. The project started on January 1st 2024 and has a duration of 42 months.

The GIANTS project is promoting frugal and sustainable urban mobility with a focus on zero-emission, modular L-type vehicles. The goal is to construct these vehicles using standardised modules, known as technology bricks, which are part of the so-called GIANTS platform. This platform features swappable batteries, a standardised vehicle control system, and integrated solar panels, enabling the creation of various vehicle models tailored to specific urban traffic needs in both advanced and emerging markets.

By prioritising adaptability, refurbishment, and recyclability, GIANTS aims to create vehicles that are cost-effective and environmentally friendly throughout their lifecycle. By fostering collaboration between European organisations and partners in Asia and Africa, GIANTS is paving the way for a global impact in sustainable mobility.

3.1.2 GIANTS Key Facts

Long Title: Green Intelligent Affordable New Transport Solutions

Project Duration: 01. January 2024 - 30. June 2027 (42 Months)

Consortium: 23 Partners, 11 Countries

Project Budget: 15 Mio. EUR

Funded under: HORIZON-CL5-2023-D5-01-03

Coordinated by: Virtual Vehicle Research GmbH

3.1.3 The Consortium

The consortium consists of a total of 23 partners from the industry (OEMs and Tier I & Technology providers) and research. Figure 3-1 provides a graphic overview of the project partners and their roles and responsibilities.

Figure 3-1: Overview Consortium

The GIANTS Consortium is an international collaboration dedicated to developing and implementing innovative solutions for sustainable, urban mobility. The project brings together a wide range of partners from the automotive industry, research, and networking fields.

Coordinator: The **Virtual Vehicle Research GmbH** leads the consortium, while supporting activities and ensuring effective collaboration between partners.

Supervising OEMs: Leading vehicle manufacturers **Renault** and **Toyota** support the project with their expertise and contribute to its real-world implementation.

Demo Vehicle Manufacturers: Companies such as **SQUAD**, **TUX Mobility**, **Clean Motion** and **TOJO Motors**, provide demonstration vehicles, enabling the realisation of innovative mobility concepts.

Component Suppliers: Key technology providers, including **Valeo**, **Cleantron**, and **Solbian**, supply essential vehicle components and advanced technologies.

Universities: Academic institutions such as **KU Leuven**, the **Vrije Universiteit Brussel** (VUB), and the **Czech Technical University** in Prague contribute valuable scientific expertise and research results.

Network & Know-how Suppliers: Various organisations and experts, including **POLIS**, **CLEAN AIR ASIA**, **Wuppertal Institute**, **CLEPA**, **WeTu**, **i2m**, **HiWi**, **FIR.MT** and **IESTA**, facilitate knowledge exchange, provide data, and support the dissemination of project outcomes.

3.2 Demo Sites

To bring the GIANTS solution to life, demonstration sites – or "Living Labs" – are being established in Brugge, Stockholm, Kisumu, Delhi, and Manila. The Living Labs aim to validate and optimise vehicles based on the GIANTS platform across diverse environments, ensuring versatility, replicability, and adaptability to local needs. These sites will host real-world trials, inviting local communities and mobility providers to actively participate in testing. Each location ensures that the solutions address diverse transportation challenges while supporting both passenger and cargo needs.

3.2.1 Urban Living Labs: Driving Innovation in Sustainable Mobility with *GIANTS*

Urban Living Labs (ULLs) are a methodology for promoting, testing and refining innovative solutions in the context of sustainable urban development. Unlike conventional participatory approaches, ULLs adopt a **user-centered model** that builds on a specific use case and engages diverse stakeholders, allowing for real-world experimentation to ensure that solutions are contextually relevant and responsive to stakeholder needs.

By emphasising iterative adaptation and scalability, ULLs provide a framework for addressing the complexity of urban sustainability transitions beyond individual innovative solutions. They allow for the participation and testing of innovative solutions in real-world experiments to determine their applicability in the local context and to the specific needs of stakeholders.

The implementation of low-carbon transport systems illustrates the challenges that ULLs seek to address. These challenges include:

- Infrastructure development,
- Regulatory frameworks,
- Market integration,
- Cost and financing structures, and
- User acceptance.

Success requires collaboration between a wide range of stakeholders, including private companies, public authorities, end users and research institutions. However, fragmented communication and siloed responsibilities often undermine these efforts and lead to sub-optimal solutions.

ULLs mitigate such barriers by providing a collaborative platform that fosters shared knowledge, coordinated decision-making, and the development of adaptive strategies to manage uncertainty and changing conditions.

3.2.2 Expanding Urban Living Labs Globally with GIANTS

While ULLs have been used extensively in Europe over the past two decades – with strategic support from bodies such as the European Commission – their uptake in the Global South remains limited. The GIANTS project aims to address this imbalance by establishing Living Labs **in five cities across three continents** (see Figure 3-2):

- **Europe**: Bruges and Stockholm
- **Asia**: Delhi and Manila

- **Africa**: Kisumu

GIANTS aims to demonstrate the applicability of **frugal vehicle concepts** in different geographical and socio-economic contexts.

Figure 3-2: Global map of GIANTS *Urban Living Labs*

3.2.3 How the GIANTS Urban Living Labs Work

The GIANTS project is based on five defining characteristics of Urban Living Labs:

1. Geographical Embeddedness

ULLs will be located within well-defined geographical contexts – from neighbourhoods to entire cities – to ensure that innovations are closely aligned with local conditions and governance structures. The 5 Living Labs will test vehicles in European, African and Asian cities.

2. Experimenting and Learning

At the heart of the ULLs is a commitment to experimentation and capacity building. Through co-design processes and knowledge sharing, ULLs support the identification and refinement of solutions, while encouraging behavioural change among users to adopt new practices. Use cases include point-to-point on-demand passenger transport, first and last-mile connectivity to collective transport, or flexible combined freight and passenger transport.

3. Participation and End-user Involvement

ULLs rely on the active involvement of different stakeholders, including users, industry representatives, public institutions and academic researchers. This inclusive approach aims to overcome sectoral fragmentation and ensures that innovations are both relevant and practical in local contexts. Participants in the GIANTS Living Labs include vehicle manufacturers (OEMs), local transport operators, local authorities, battery and charging providers, social enterprises, civil society organisations and researchers.

4. Leadership and Ownership

While participatory governance is essential, ULLs require clear leadership and coordination. The appointment of lead organisations or coordinators will ensure alignment of thematic activities such as data management, policy integration and impact assessment while maintaining a balance between oversight and inclusiveness. Each of the Living Labs will be coordinated by two GIANTS partners with different backgrounds.

5. Evaluation and Refinement

Continuous evaluation is an integral part of the ULL framework, facilitating iterative improvement and adaptation. Beyond local experimentation, ULLs aim to generate transferable knowledge to inform broader systemic transitions towards sustainability. GIANTS Work Package 6 includes tasks with allocated staff and working hours to ensure that Living Labs are evaluated and that lessons are distilled and published.

3.3 Spotlight on Our Partner Project: ZEV-UP

GIANTS and ZEV-UP share a common goal of designing affordable zero-emission vehicles in advanced and emerging markets, with complementary approaches tailored to different market needs. Both projects are exploring synergies, including knowledge sharing and exchange, to maximise their collective impact on sustainable transport.

The ZEV-UP project is designing an affordable, sustainable and user-centric Battery Electric Vehicle (BEV) for passengers and goods in both advanced and emerging markets. Their innovative vehicle will feature a swappable system to reduce user costs and improve energy efficiency. With three adaptable variants, ZEV-UP is prioritising sustainability, and user acceptance, alongside advancements in charging solutions to encourage the shift toward electric vehicles. The vehicles will be tested in Budapest (Hungary) and Istanbul (Türkiye), while the GIANTS L5-L6 category vehicles will be tested in Brugge (Belgium), Stockholm (Sweden), Kisumu (Kenya), Delhi (India), and Manila (Philippines).

More information about the ZEV-UP project:

- **Website**: Homepage - ZEV-UP
- **LinkedIn**: (25) ZEV-UP Project: Übersicht | LinkedIn

3.4 WP2 and WP3 Results so Far

This chapter provides an overview of the progress and the key results achieved in WP2 and WP3 of the GIANTS project.

3.4.1 Overview WP2

WP2 (Stakeholder focus & needs: outlook on future urban areas & related policies) aims to establish a level playing field for a vehicle concept that can be seamlessly integrated into diverse mobility systems and address the often-conflicting expectations of vehicle users, territories, and citizens living or travelling in functional urban areas. By considering regulatory, social, and environmental factors, this approach aims to exploit future opportunities while ensuring that the vehicle concept is adaptable to different contexts.

The main outcomes of WP2 so far are:

- **D2.1:** *Stakeholders Needs & Acceptance* – This deliverable presents an in-depth analysis of stakeholder needs for a frugal electric vehicle (EV) platform.
- **D2.2***: Data Synthesis & Demo* – Consolidates data from T2.1 and T2.2. Ongoing survey analysis and desk research are expected to be completed in early 2025.

The WP2 User and Stakeholder Needs online Survey, which included a KANO consumer preference assessment, received a total of 330 responses over a three-month period. Interviews have been carried out with 13 fleet operators from Africa, Asia and Europe to gain in depth understanding of their needs and concerns. An Innovative Mission Suitability & Social Index is being developed to systematically categorize, assess, and prioritize the needs of users and stakeholders in mobility systems with frugal EVs. Although the results are still being analysed and will be included in D2.2, some initial findings are as follows:

- Approximately 20% of respondents were from emerging markets.
- 82% identified themselves as private individuals or end-users.
- 70% hold a university degree (bachelor's or higher).
- 57.6% live in urban areas or cities with populations exceeding 150,000.

Additionally, desk research has been conducted for four out of five project demo sites to complement the survey results.

D2.1 contributed key insights that have guided the project's goals and next steps. These outcomes will support the successful integration of frugal EVs into diverse mobility systems, helping to shape the future project developments. The results of WP2 will provide a solid foundation for the following project phases, ensuring that the vehicle concept remains adaptable and effective in different geographical and socio-economic contexts. Moreover, the work conducted in the WP, particularly in D2.2, will contribute to the activities being undertaken in WP3.

3.4.2 Overview WP3

The goal WP3 (Definition and optimisation of the frugal EV architecture towards a reference platform design) is to develop a frugal, energy-optimal high-level EV architecture. This involves defining the e-driveline system and components based on various factors, such as stakeholder requirements, benchmark of existing systems, and the expertise of the participating OEMs. The targeted e-driveline will consist of a powertrain (motor + inverter), a powertrain control unit, a swapable battery system, off/on-board charger, solar panel system, and other related components and interfaces.
To ensure the system feasibility, the impact of performance and safety requirements on the e-driveline, particularly the battery system, is being assessed. In addition, a validation plan is being created to prove the function of the e-driveline.

The benchmark of existing L-type EV shows a wide range of product variants in both emerging and advanced markets. As a part of T3.1, a benchmarking overview was created to help the partners analyse and compare existing product specifications.

Since the demonstration vehicles are key project deliverables in the GIANTS project, the OEMs have described their expectation for these vehicles in an overview based on existing market experiences and insights from WP2.

During the ongoing alignment as a part of T3.2, on a reference high-level EV architecture, the GIANTS OEMs have shown differences in their approaches for their existing vehicle products and developments. To support this decision-making, various powertrain options and their corresponding power control unit were discussed.

Further discussions have focused on key components, such as managing the swapable battery charge, discharge, and balancing cycles and defining the solar panel system.

In the current project phase, the focus of the involved partners (OEMs + Component Suppliers) is on finding a common ground for a reference e-driveline architecture. The detailed definition of feasible, compatible, and cost-effective components shows a clear dependency on higher project related objectives, such as performance, cost, customer group, compliance, safety, and project timeline. These findings will guide the development of a robust, efficient, and adaptable EV platform.

3.5 Outlook for Year 2

Year 2 of the GIANTS project will focus on platform validation and technological advancements, laying the groundwork for the upcoming demonstration phase. The primary objective is to validate the GIANTS **Platform** in a Lab Car environment and ensure the seamless functionality of the complete EV architecture in a test bench setting.

In parallel, the simulation platform around GIANTS will be validated, and a cloud-based IT infrastructure will be implemented to support data collection during the demonstration phase. Additionally, GIANTS will introduce a **Mission Suitability and Social Index**, providing a metric for aligning vehicle properties to mission profiles and social contexts.

Expected Milestones:

1. Completion of the GIANTS platform, including specifications for core components and interfaces.
2. Successful validation of the GIANTS platform in a controlled test bench environment.

Year 2 will be crucial in translating project concepts into validated technologies, laying the groundwork for impactful demonstrations in the coming years.

3.6 General Project Information

3.6.1 Website and Social Media Accounts

More information on GIANTS is available on our website: GIANTS-project.eu

Make sure to follow us on **LinkedIn**!

Visit us on **Youtube** for special project insights!

3.6.2 Acknowledgment

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4. Conclusion

The first GIANTS newsletter highlights the significant strides made during the project's first year, showcasing the collaborative efforts and innovative solutions developed to advance sustainable and frugal urban mobility.

From introducing the project’s objectives and key facts to spotlighting results from WP2 and WP3, this edition sets the foundation for understanding the project's transformative potential. With an ambitious outlook for Year 2, GIANTS is poised to continue its journey of developing zero-emission modular vehicles and expanding the impact of Urban Living Labs globally.

The newsletter serves as a valuable resource for disseminating the project's progress, engaging stakeholders, and driving public awareness.

5. Abbreviations

Term	Definition
BEV	Battery Electric Vehicle
DEC	Websites, Patent Filings, Videos etc.
EU	European Union
EV	Electric Vehicle
GIANTS	Green Intelligent Affordable New Transport Solutions
HORIZON-IA	Horizon Europe Innovation Action
OEM(s)	Original Equipment Manufacturer(s)
PU	Public
ULL	Urban Living Lab
WP	Work Package