



# URBANIZED

MODULAR AND FLEXIBLE SOLUTIONS FOR URBAN-SIZED  
ZERO-EMISSIONS LAST-MILE DELIVERY & SERVICES VEHICLES

ISSUE 1

FEB 2022

**W**elcome to the first edition of the URBANIZED newsletter. We aim to provide our latest updates and to share information with you about our exciting work. Through URBANIZED, we confront the challenges of balancing trade-offs in urban freight transport (UFT) services.



Our multi-disciplinary consortium of 9 partners from 6 EU countries involves all relevant actors from the value chain, from academic, to industrial (TIER1, OEMs) and logistics operators, so our solutions can drive the sustainable urban transition by making zero-emissions vehicles the best option for everyone.

## IN THIS ISSUE

Validation, testing and up-scaling to fleet level

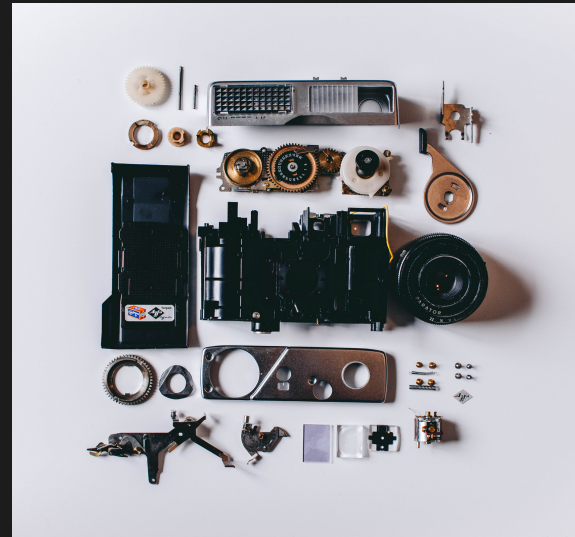
Workshop and next actions

High-performance BEV platform, optimised for small commercial vehicles



**T**he URBANIZED vehicle prototype faces several challenges in the field of passive safety and validation which will be addressed in work package 6.

In this work package, the partners from IDIADA, VUB, TNO, VIT, ALK, CER and BPO will work collaboratively to test the



URBANIZED vehicle and validate it in both virtual and physical form. Vehicles such as the URBANIZED concept are known for their compact design and lightweight structure. However, the short deformation (crush) area and low weight make it challenging to achieve a high score in Euro NCAP crash tests.

## VALIDATION, TESTING AND UP-SCALING TO FLEET LEVEL



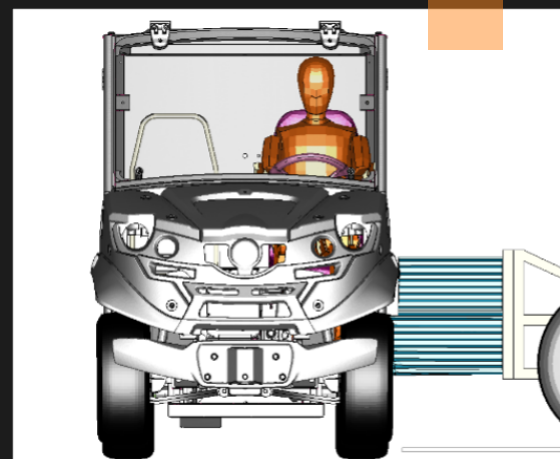
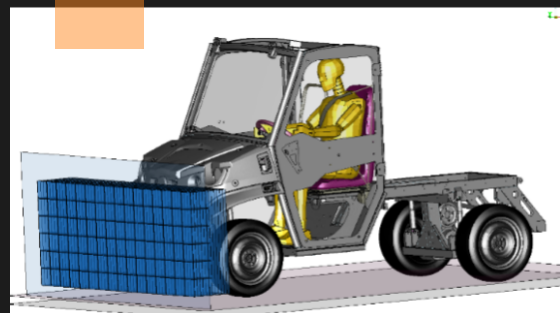
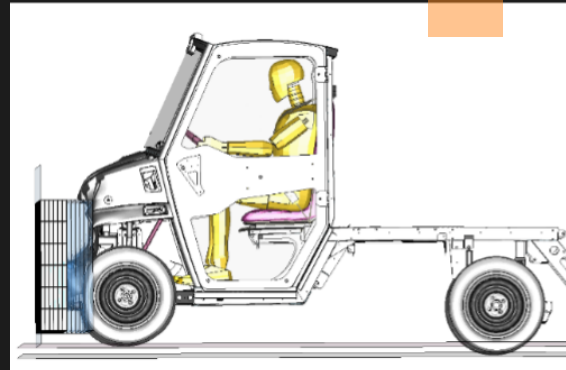
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For example, until today, the highest safety score published by Euro NCAP in the quadricycle category was of 2 Stars. However, the target of the URBANIZED vehicle is 4 stars. Therefore, several countermeasures need to be implemented in order to fulfil the target. In WP6, the URBANIZED vehicle will be evaluated in the full frontal and side crash test both at the structural level and damage to the occupant.



## About IDIADA

Applus IDIADA is a global partner to the automotive industry with over 30 years of experience supporting its clients in product development activities by providing design, engineering, testing and homologation services. IDIADA's success in product development is built on a unique blend of highly experienced engineers, state-of-the-art test and development facilities and the constant drive towards innovation. The company has more than 2.500 professionals and an international network of subsidiaries and branch offices in 22 countries, ensuring its clients receive customized added-value solutions.



**O**n July 2021, the first URBANIZED Workshop, entitled “Creating the conditions for flexible, zero-emission, 100% electric city logistics” was held online by the Hellenic Institute of Transport of CERTH and BAX COMPANY. Over 30 stakeholders from the field of logistics and freight transportation including researchers, logistics actors, transport operators, participated



in order to identify the right mix of policies, strategies and measures that can support the adoption of electric vehicles (EVs) in city logistics. This first workshop was a part of a series of multi-stakeholder dialogues that will create a roadmap for effective integration of new, modular electric freight vehicles in physical distribution activities.



## WORKSHOP AND NEXT ACTIONS



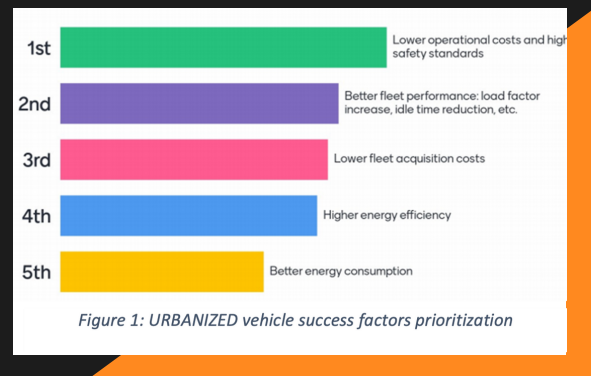
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The main aim of this workshop was to capture the reactions of the participants in terms of the main characteristics and success factors of the URBANIZED vehicle as defined in WP2 and after that to brainstorm on the appropriate policy actions that are needed for achieving higher levels penetration of such vehicles in EU cities. During the first session, the project partners briefly presented the aim of the URBANIZED project, the vehicle under development and its main characteristics and success factors. After that, a fruitful open discussion took place and the participants were



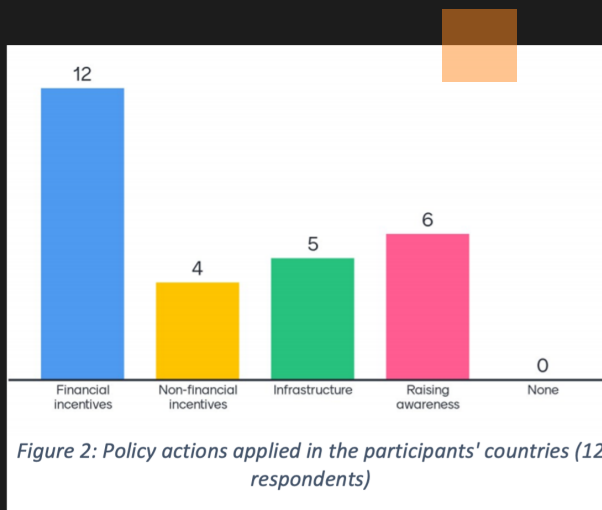
asked to declare their preferences in terms of the technical characteristics of the vehicles and assess the vehicles' main success factors. The results show that the key technical characteristics of the URBANIZED vehicle are the efficient drivetrain with the intelligent, long lasting battery system, as well as the ICT platform and energy management system that will be developed.

## WORKSHOP AND NEXT ACTIONS



In terms of the main success factors, the lower operational costs and high safety standards as well as the better and more efficient fleet management (load factor increases, idle time reductions e.tc.) appeared to be the most promising.

The second session focused on identifying the right policy mix for supporting the penetration of electric urban freight vehicles in EU cities. The participants were asked to declare the currently applied policy measures. The most widely applied policy appeared to be the financial support followed by actions to enhance raising awareness. Yet, most respondents were dissatisfied with the current policy design or its implementation, as the transport and logistics sector is far from decarbonised.



## WORKSHOP AND NEXT ACTIONS



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A second workshop is scheduled to be implemented at the beginning of March 2022 aiming to delve into the strategic planning of cities towards electrified urban freight transport in an attempt to develop a roadmap for a zero-emission city logistics sector by 2030.



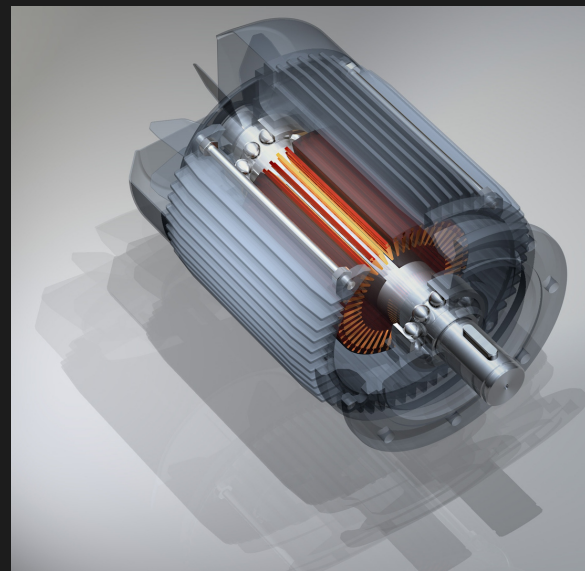
If you are interested in participating in the second workshop, you can express your interest [here](#). For more information, please contact us at [contact@urbanized.eu](mailto:contact@urbanized.eu)

## About HIT

The Hellenic Institute of Transport (HIT) is part of the Centre for Research and Technology Hellas (CERTH) which is a non-profit organization that directly reports to the General Secretariat for Research and Technology (GSRT), of the Greek Ministry of Development and Investments.



In order to solve the trade-offs between large-scale production and tailor made products, typically related to small-scale production applications, URBANIZED proposes to go from the Vitesco Technologies 48 V High Power (30 kW, 70 Nm) e-drive for P2 Mild Hybrid applications to a 48 V e-axle drive for several vehicle platforms. The newly designed inverter and on-board charger systems will consist of fully integrated power modules, which can be reduced in size (up to 80% less volume compared to the current Si-based IGBT



technologies) and reduce the energy switching losses up to 75%, thereby achieving high energy efficiencies of up to 98%. The GaN-inverters will be designed to operate at high switching frequencies of up to 40 kHz considering the optimal selection of the electric motor.

**High-performance BEV platform, optimised  
for small commercial vehicles**





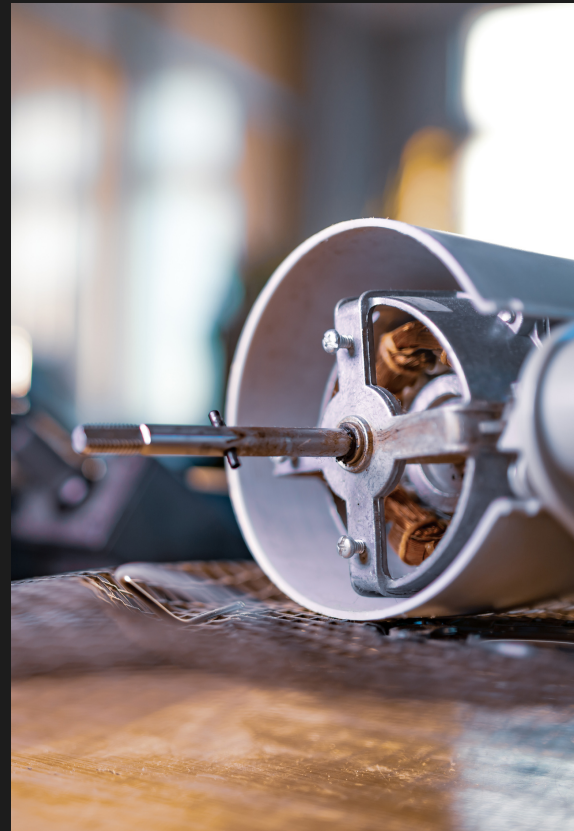
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The inverter has been developed with modular hardware, being an easy extension to other power and voltage levels. URBANIZED also investigates the feasibility of using a modified 3-phase AC/DC converter to also allow for DC/DC charging from 400 V down to 48 V (up to 60 V), allowing the new e-powertrain platform to make use of high power charging from available DC charging infrastructure.



## About VUB

The Mobility, Logistics and Automotive Technology Research Centre (MOBI) is nested at the Vrije Universiteit Brussel (VUB) and is a leader in electro-mobility, sustainable mobility and logistics research. It develops electric and hybrid vehicles technologies and evaluates new concepts in mobility and logistics on their sustainability. MOBI aims at a better and safer mobility of people and goods, to reduce congestion and environmental impacts in urban and inter-urban areas, and to improve operational efficiency.



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