Finanziato dall'Unione europea
NextGenerationEU

Ministero dell'Università e della Ricerca

Italiadomani
PIANO NAZIONALE DI RIPRESA E RESILIENZA

NODES
Nord Ovest Digitale E Sostenibile

Spoke1
Aerospace and sustainable mobility

Sustainable mobility

ELECTRO

Electrically Propelled Vehicles: Charge and Technologies

THEMATICS AND TASKS

The flagship project includes and merges different aspects related to the EPV world giving a common proposal that comprehends **the development of charging devices**, as well as **the study of materials** for next generation mobility and **business models development** for EPV market.

- CHARGING STATION LAB FACILITY
- DEVELOPMENT OF A DECISION SUPPORT SYSTEM FOR LOCAL PUBLIC TRANSPORT FLEET ENERGY TRANSITION
- MATERIALS FOR NEXT GENERATION MOBILITY
- FACILITY MANAGEMENT AND LOGISTICS
- COOPERATIVE VEHICLE CONTROL
- THE SPATIAL DISTRIBUTION OF THE RECHARGING INFRASTRUCTURES
- TESTING EQUIPMENT SET-UP FOR ELECTRIC, AUTONOMOUS AND CONNECTED VEHICLES
- TRANSFORMATION OF VALUE CHAIN AND WORK
- VEHICLE-TO-EVERYTHING (V2X) CONNECTIVITY
- DEVELOPMENT OF HIGH EFFICIENCY GAN MULTILEVEL ACTIVE FRONT ENDS FOR ON-BOARD BATTERY CHARGERS
- CONSUMPTION, DISTRIBUTION AND BUSINESS MODELS FOR ELECTRIC CARS

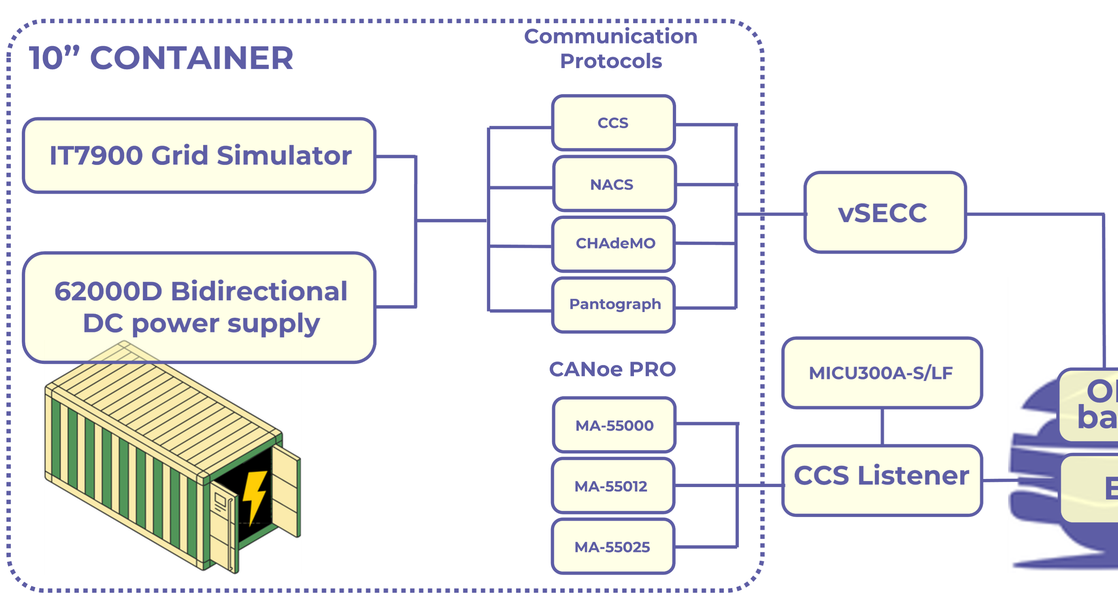
CHALLENGE

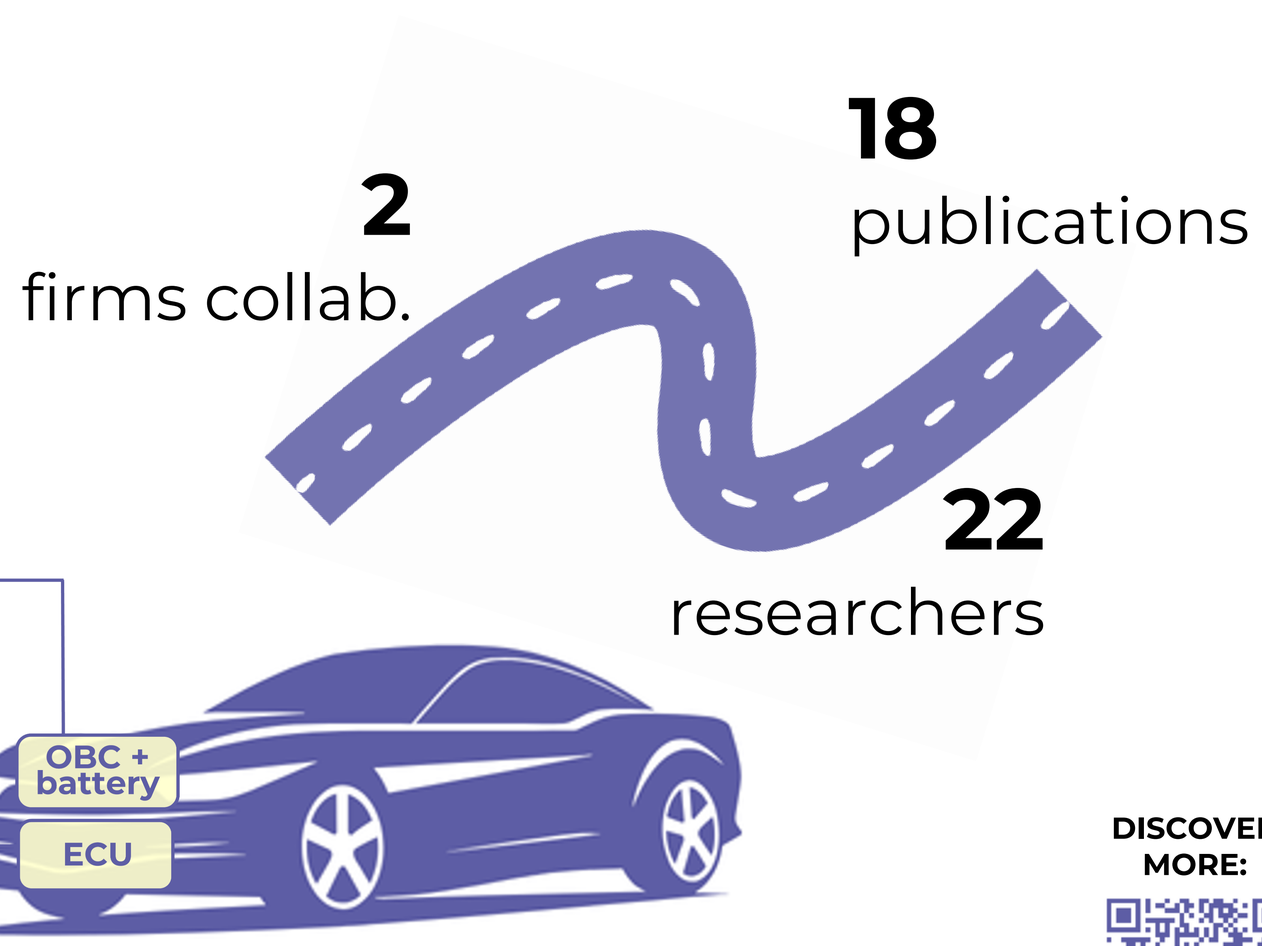
The automotive sector and the mobility sector are facing the **challenges of new technological paradigms** that have an impact both on the vehicles and on the related infrastructures. The key ambition of the project is to enhance innovation capabilities of companies operating along the stages of the value chain of the mobility sector by **offering the opportunity to experiment and test new solutions and applications.** This will be possible with the planning and testing of different solutions related to **EPV** charge, with charging and testing facilities, V2X connectivity, cooperative vehicle control, charging facility simulation for its integration, equipment testing set-up for electric, autonomous and connected vehicles, Development of High efficiency GaN multilevel active front end for on-board battery chargers.

RESULTS AND IMPACT

The project will generate new technical knowledge, with the **testing of** related **solutions and their exploitation by established firms or new ventures**; eventually contributing to support the design of innovation paths by the SMEs operating in the ecosystem. A goal close to completion is the creation of a **charging lab** that would allow to **simulate** the grid as well as to replicate every V2G communication protocol currently in force. In fact, **it will host all possible types of charging columns condensed into a single hub** available to the user, accompanied by a monitoring system that keeps track of activities during communication between vehicle and charging lab.

THE CHARGING LAB





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Poster version of 16/07/2024

Part of the project NODES which has received funding from the MUR – M4C2 1.5 of PNRR funded by the European Union, NextGenerationEU (Grant agreement no. ECS00000036)

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