

## Partners



## 5 Industries



## 6 Research Centers



## 5 SMES



Learn more  
about  
**MASTRO**

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# MASTRO

Intelligent bulk  
MAterials for  
Smart TRanspOrt  
industries

[www.mastro-h2020.eu](http://www.mastro-h2020.eu)

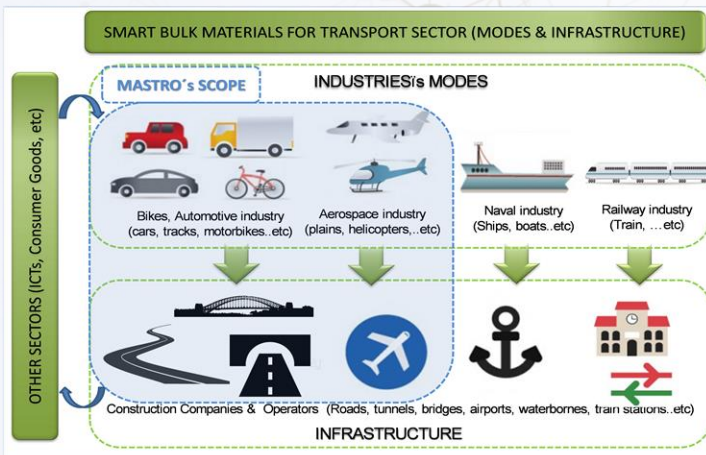
# The MASTRO Project

**aims to develop** intelligent bulk materials for the transport sector based on novel concepts like self-sensing, self-deicing, self-curing, self-healing, and self-protection properties.

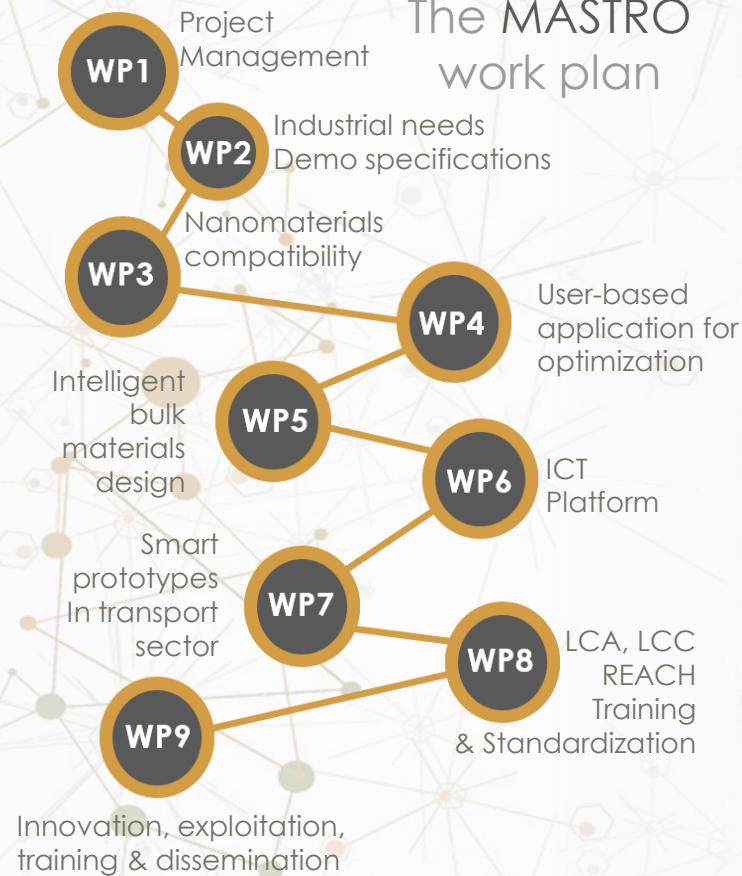
The functionality of the developed components will be supported by theoretical material models and demonstrated under relevant conditions at prototype level for the aerospace, automotive, and transportation networks.

The matrices addressed consist of lightweight polymer composites, asphalt, and concrete formulations incorporating electrical carbon-based conductive nanomaterials. These materials will improve consumer safety, component life-span, and performance while reducing maintenance and manufacturing costs.

# The MASTRO Scope



# The MASTRO work plan



# The MASTRO Objectives

- To produce various types of tailored nanomaterials with the desired functionalities
- Develop a multi-scale predictive model for the self-responsive functionalities
- Design and develop intelligent bulk materials with self-responsiveness properties
- Develop an ICT platform for intelligent monitoring and control
- To demonstrate, prove, and validate the developed functionalities
- Conduct LCA, LCC, and REACH analysis, standardization, and training activities
- To boost the communication, dissemination, and exploitation of the technologies

# Boosting

## Future market uptake



### Research activities

developed at small scale in laboratory environment



### Upscaling

of the manufacturing processes and products with prototype testing



### Validation

of the technologies according to requirements and needs set by END USERS

Enhancing market opportunities for European industries



Improving consumer safety

Reducing maintenance cost

Improving resource efficiency

Contributing to a future circular economy

Enhancing the knowledge base in the EU in R&D, manufacturing and production

Improving our understanding of material properties