

# Monitoring & Maintenance of electric infrastructure

RESULTS  
AREA

*The impact of the introduction of the recharging devices in the road structure is of paramount importance for the feasibility of future electric infrastructure*

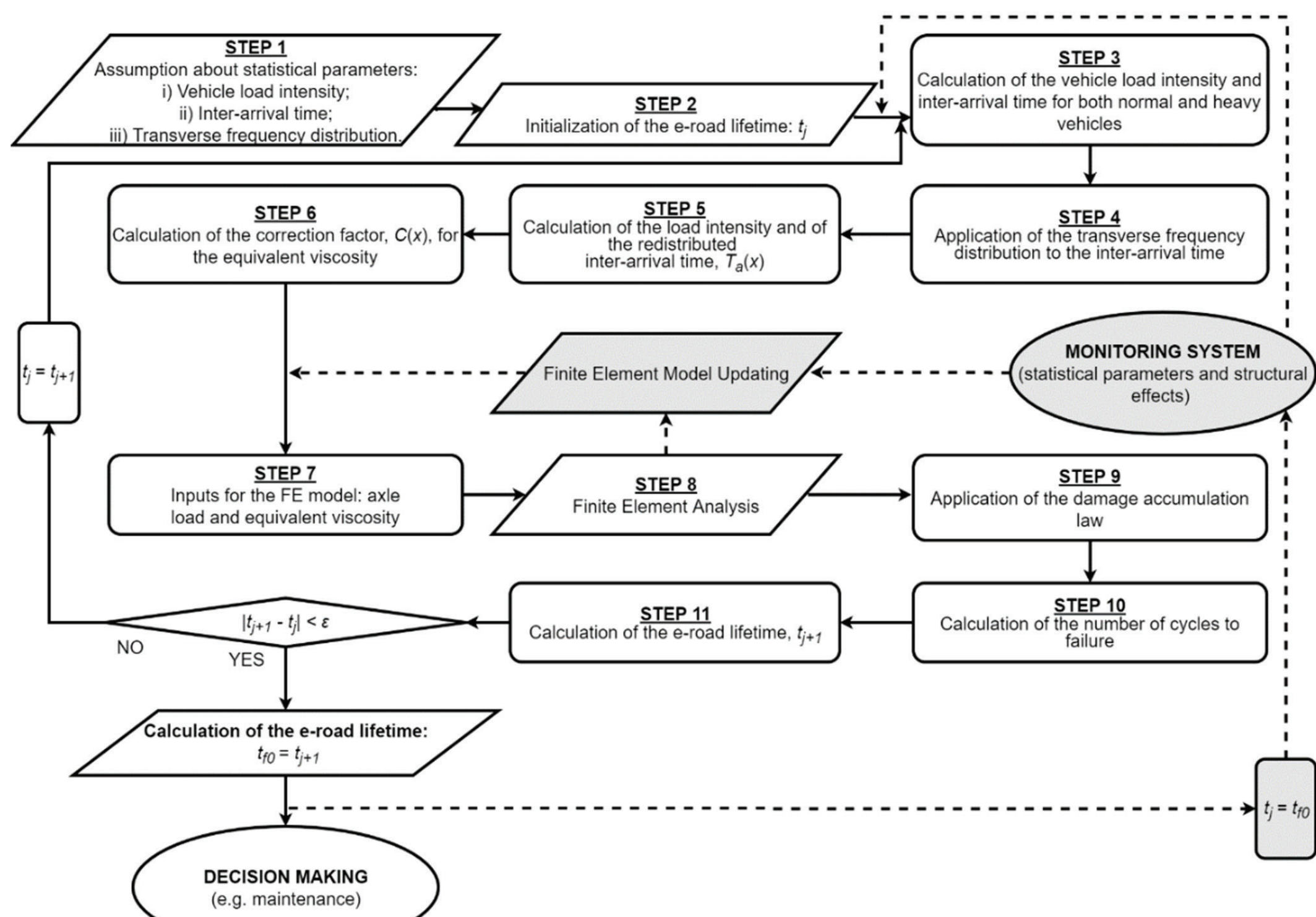
## Introduction

The main problems of actual electric vehicles are relied to batteries, because of their high weight, high costs and relatively high CO2 footprint of their manufacturing. The aim of FABRIC project is to overcame these issues introducing the charging while driving concept. The Charging Unit (CU) itself will be incorporated in the road pavement and electric cars will be able to recharge with a Wireless Power Transmission technology by passing over it.

## Methodology

- Short-term analysis: e.g. study of the debonding effects between the charging unit and the electric road (e-road) structure during the braking phase.
- Long-term analysis: e.g. creep effects, endurance of the wear layer of e-roads, etc.
- Define specific requirements for the maintenance and operation of the system.
- Incorporate a continuous monitoring system with the main expected maintenance schedules (CU replacement, fine milling of the material that cover the CU, etc.).

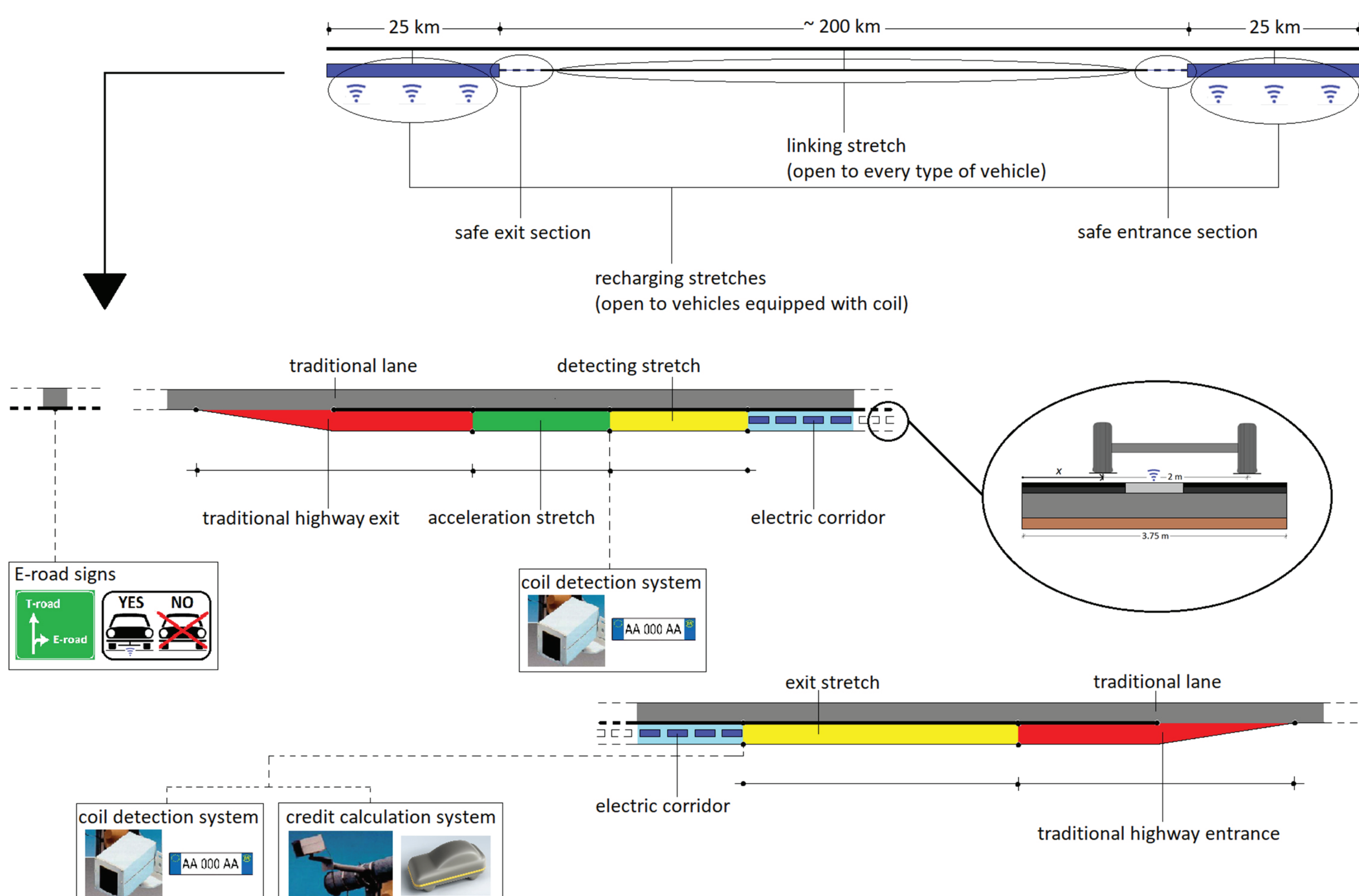
## Partners involved



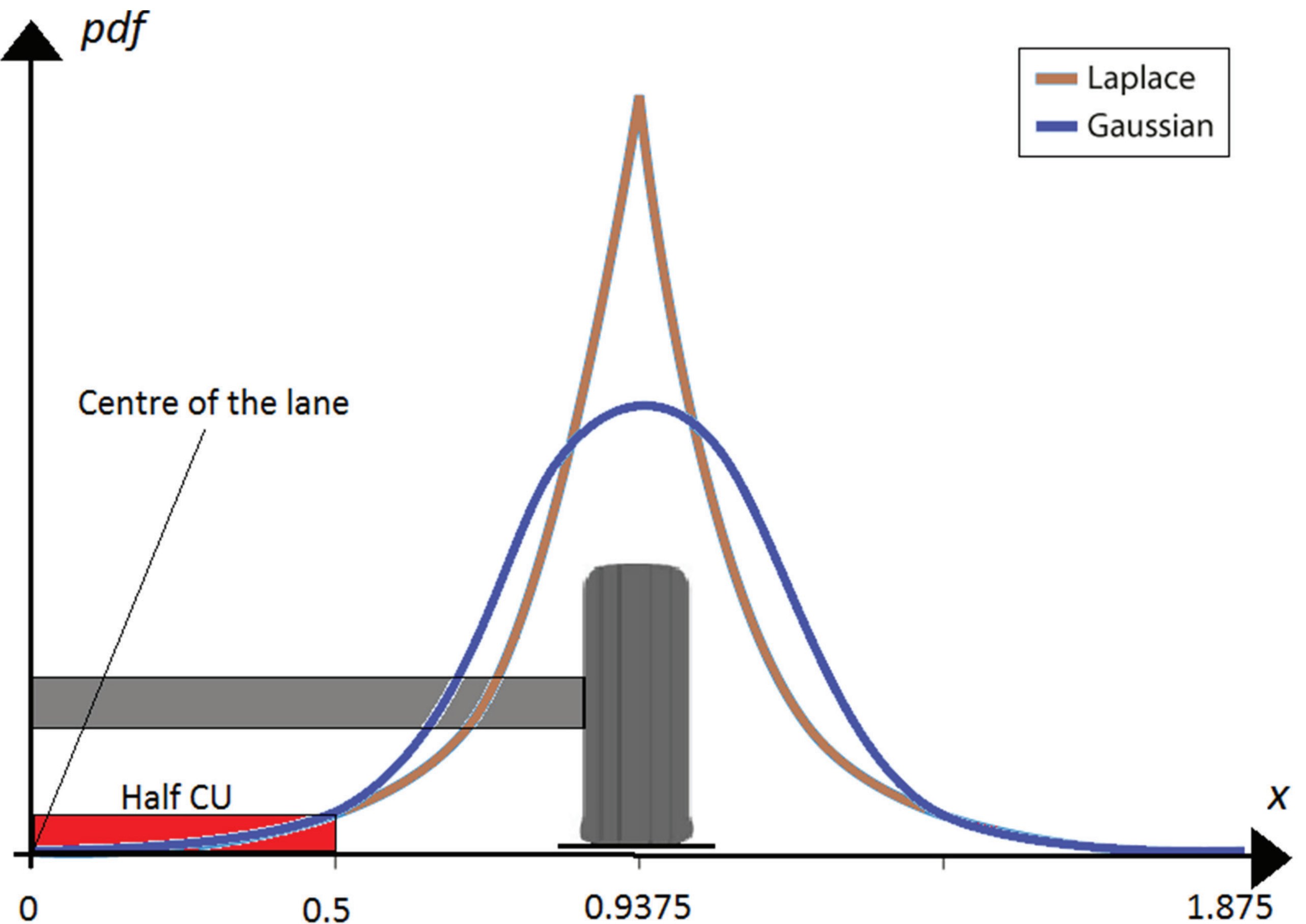
Holistic methodology.

## Developed activities

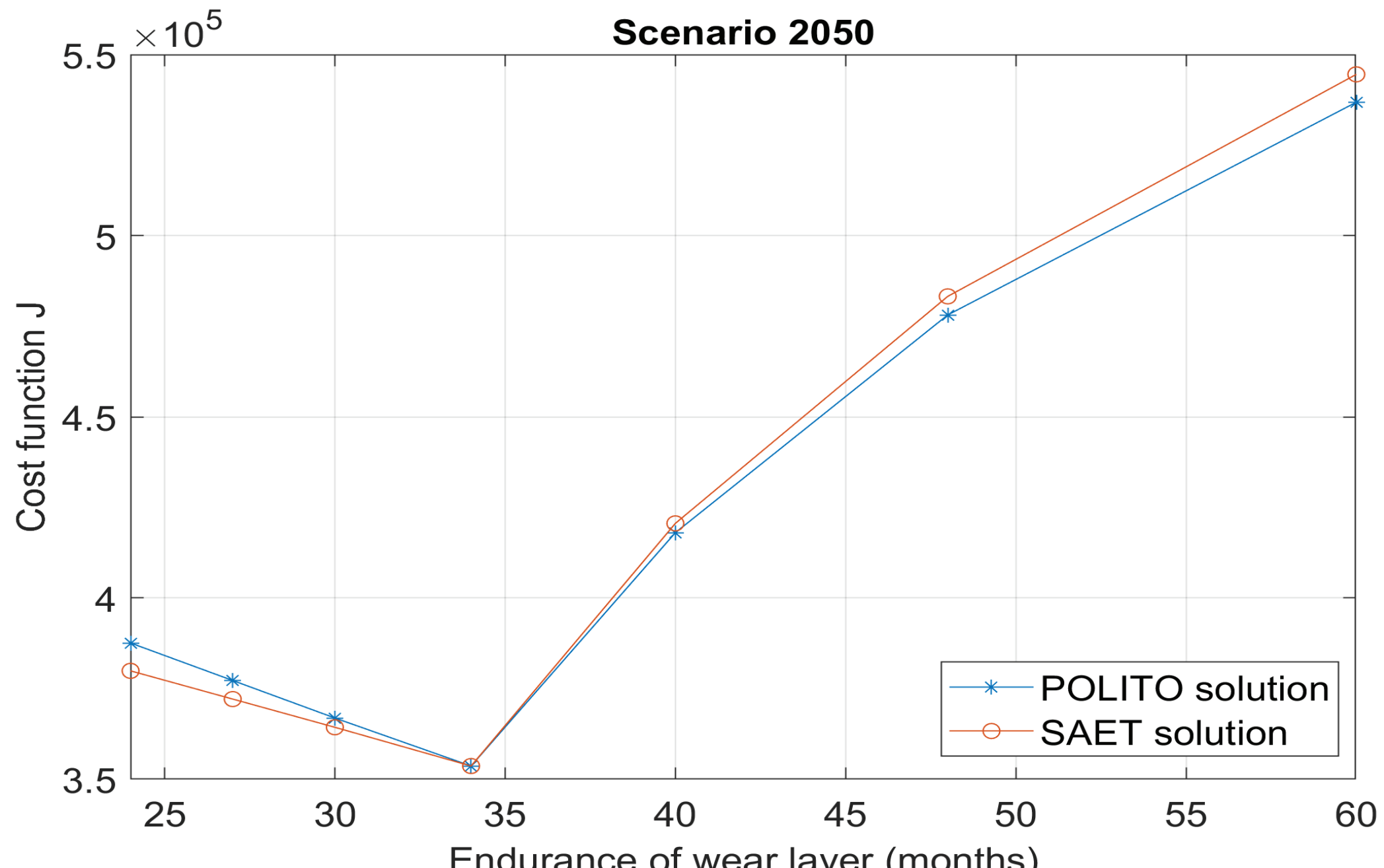
Within the FABRIC project, an holistic strategy to define the maintenance and rehabilitation activities of e-roads has been developed taking into account some peculiarities of these new infrastructures, as the vehicles load concentration along the travel direction. The concentration comes from the low misalignment that must be ensured between the infrastructure and the vehicle's charging technology to obtain an high efficiency of the recharging process. The operation of e-roads has been also investigated, especially in case of unexpected situations that could characterise the future electric infrastructures. Finally, the drawing up of technical protocols that describe the preventive maintenance and rehabilitation activities for e-roads have been defined.



Recharging lane of future electric infrastructure.



Probabilistic distributions of the transverse position of the vehicle with respect to the e-road Charging Unit (CU).



Optimal cost-based design life of the wear layer for POLITO and SAET solution (scenario 2050).

# Final Event & Demonstration | 21-22 June 2018 Italy

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## Consortium

### Project facts

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