PHOEBE Project

James Bradford, IRAP

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101076963

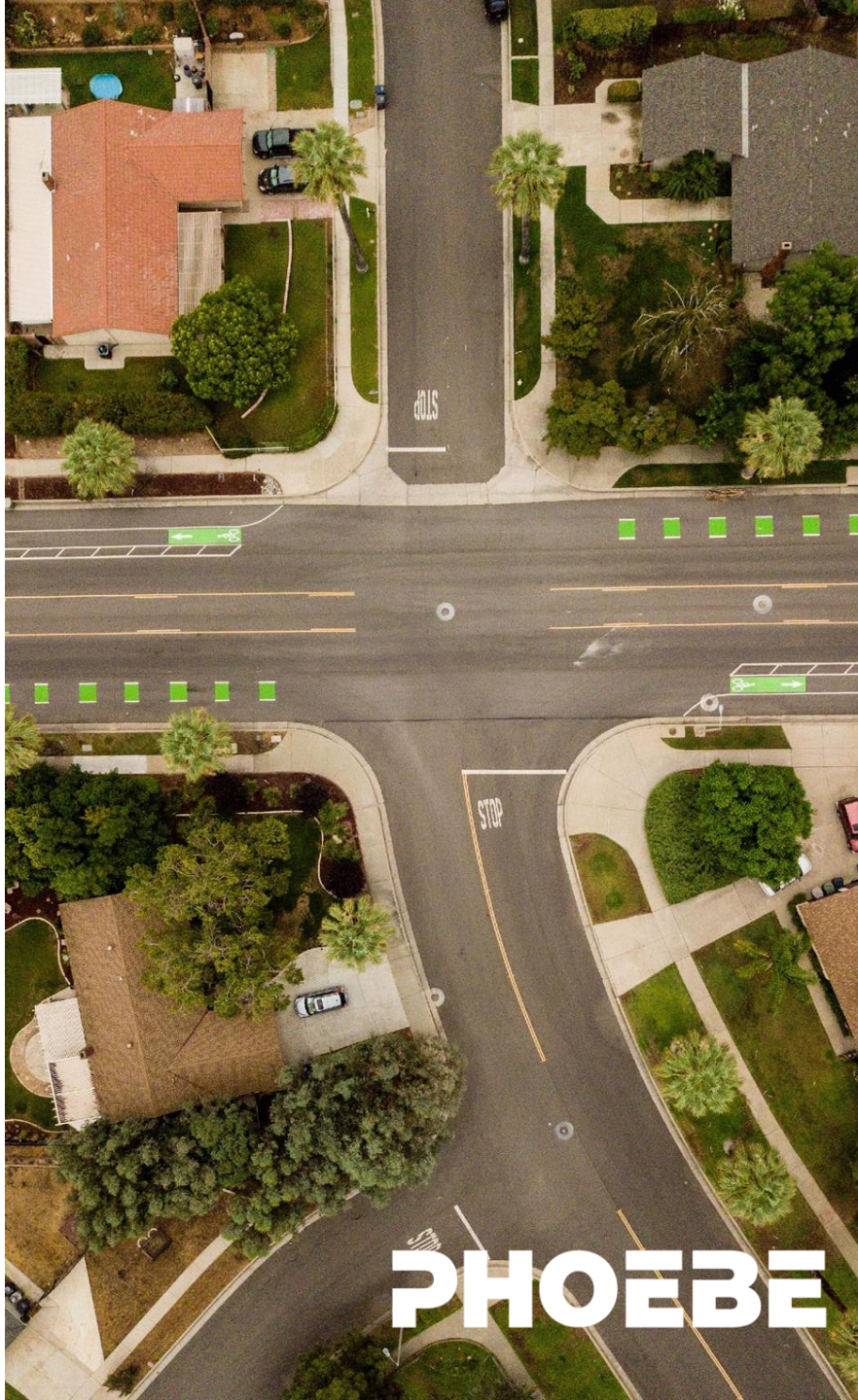
UK participants in Horizon Europe Project PHOEBE are supported by UKRI grant numbers 10038897 (The International Road Assessment Programme – iRAP) and 10056912 (The Floow)

The need

Urban traffic systems are experiencing an increasing array of dynamic factors

Models strongly focused on vehicular traffic

Lack of integration with systems and tools used to manage and develop road networks



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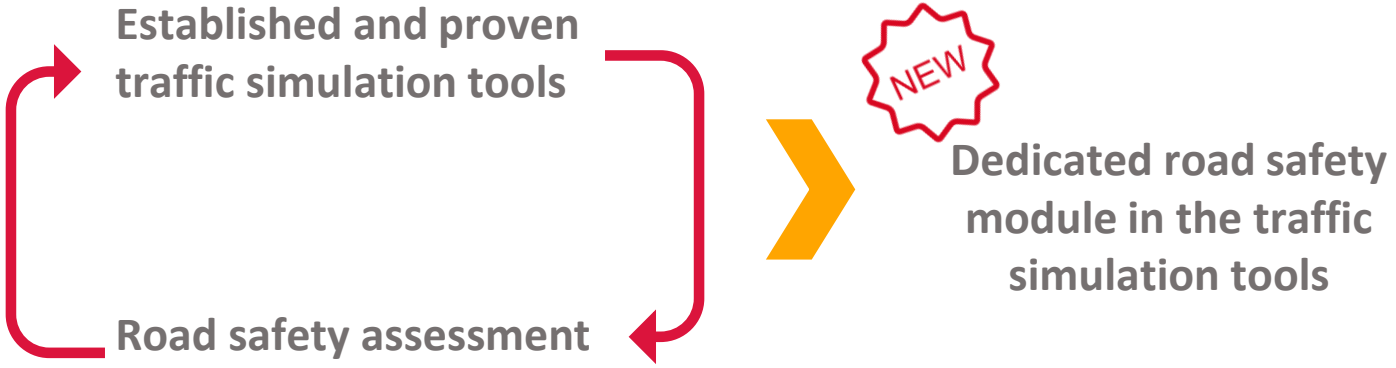
The PHOEBE framework



- (i) infrastructure safety, speed, modal shift, and induced demand models and performance metrics
- (ii) human behaviour models
- (iii) application of new and traditional data sources and analytics using artificial intelligence (AI) and machine learning (ML) techniques.

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The ambition

network-wide (macro) level

Individual (micro) level

SAFETY & SOCIOECONOMIC OUTCOMES

- New forms of transport
- New technologies
- Regulatory and behavioural changes

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focused on both vulnerable road users and vehicle occupants

significant game-changer for urban stakeholders

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The ambition

PHOEBE's methodological framework will be a **"blue-print"** for how cities can establish and apply the predictive safety assessment framework in an efficient and cost-effective way, providing a theoretical guide on how it works, and how to implement it.

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Project Objectives

1. To develop a new, replicable methodology for **dynamic safety prediction and socio-economic evaluation**
2. To **harmonise safety definitions** in traffic simulation models
3. To develop **enhanced and integrated urban risk assessment models and tools**
4. To **embody social components into risk assessments** to take into account changes in human behaviour, and mode and trip choices
5. To **exploit big data and telematics** through AI and ML data analysis techniques that are innovative and efficient
6. To apply the proposed methodological framework and enhanced and integrated predictive modelling tools in an **experimental multi-use-case**

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Use cases

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The Methodology

Locations would be selected for simulation to understand how the changes the city is planning will work in the context of other trends.

The results are then extrapolated to the network-wide level to estimate the overall impact of the forecast changes and impacts are calculated.

Data gathered to establish baseline conditions and then simulate the expected changes to the road environment

The outputs would then be evaluated to produce dynamic safety scores. The results can be used to rerun and refine simulated scenarios and validate the results

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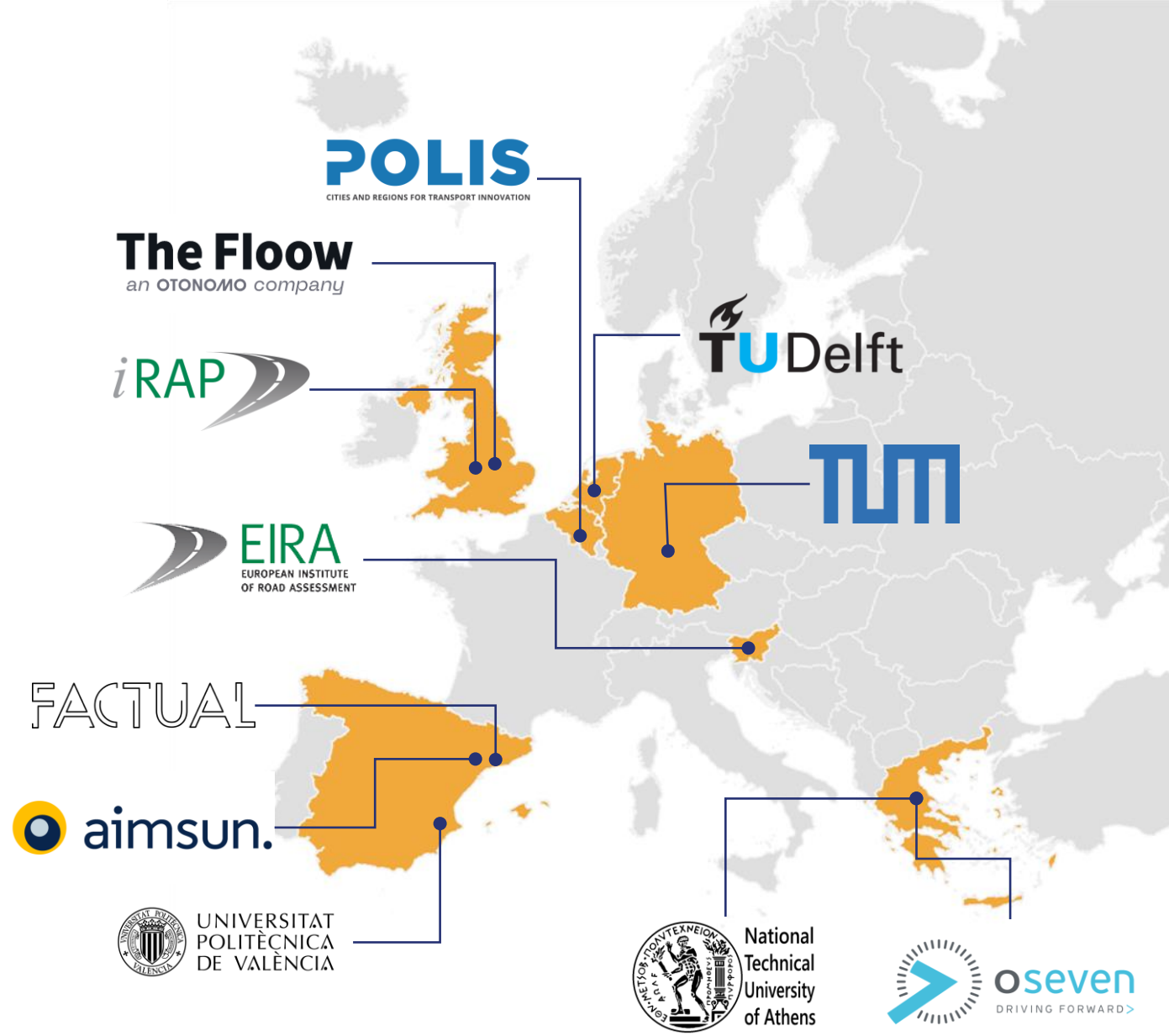
The team

seven COUNTRIES

eleven PARTNERS



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THANK YOU!

Project Technical Manager

James Bradford - iRAP

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