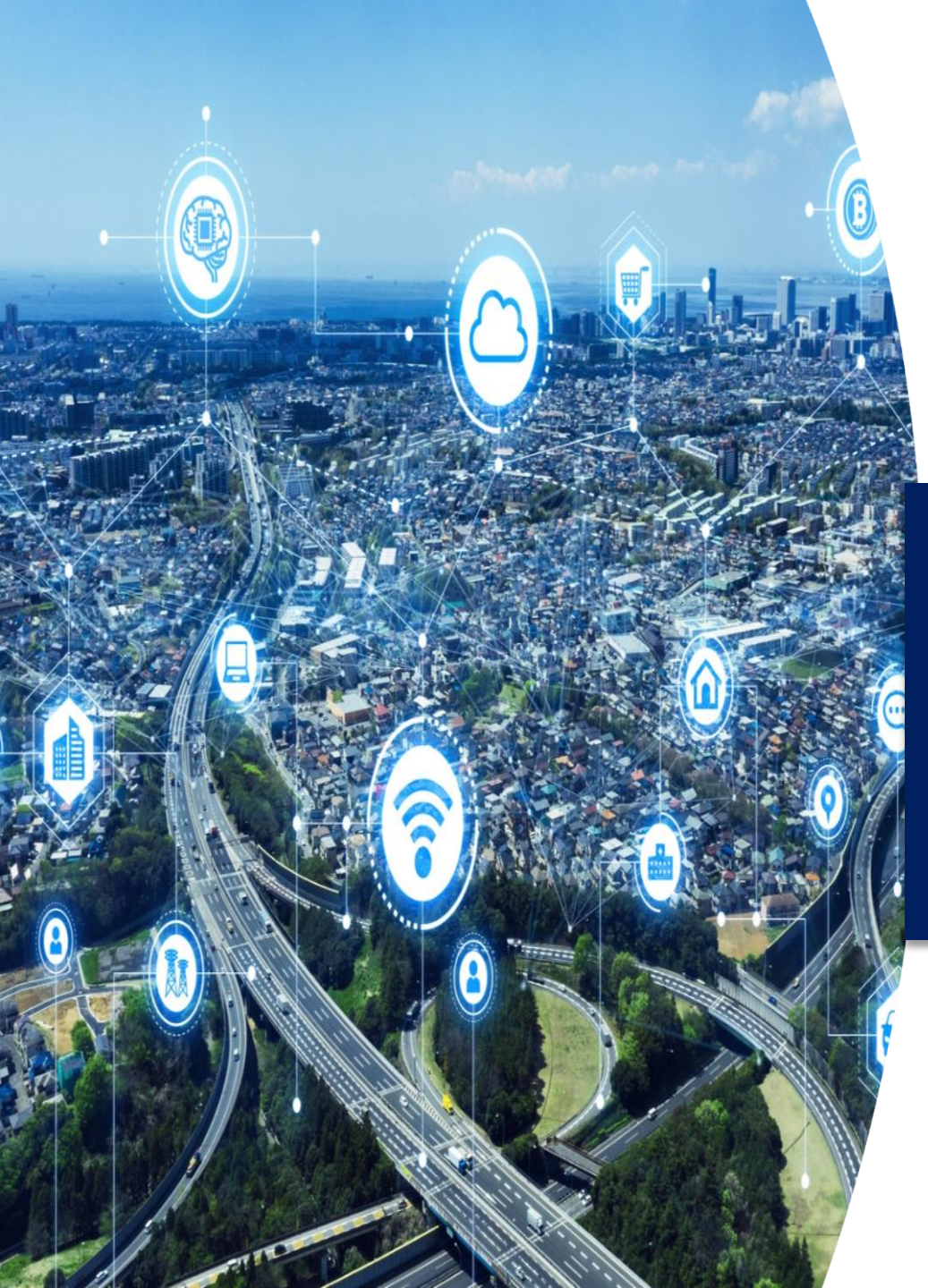


National Technical University of Athens
Road Safety Observatory

Online workshop in the framework of 6TH UN GLOBAL ROAD SAFETY WEEK 17 - 23 May 2021
Streets for Life
#Love30
DECADE OF ACTION FOR ROAD SAFETY 2021 - 2030
30 KM/H
Thursday 20 May 2021
Innovation in Road Safety Research

Smart city mapping for safer and eco driver behaviour

Apostolos Ziakopoulos

Transportation Engineer, Research Associate

Together with:
Armira Kontaxi, Dimitrios Nikolaou, George Yannis

The SmartMaps project

- **Project partners:**
  - National Technical University of Athens, Department of Transportation Planning and Engineering
    www.nrso.ntua.gr
  - OSeven Telematics
    www.oseven.io
  - Global Link
    www.globallink.gr

- **Duration of the project:**
  - 30 months (June 2021 – December 2023)

- **Operational Program:**
  - "Competitiveness, Entrepreneurship and Innovation" (EPAnEK) of the National Strategic Reference Framework (NSRF) – 2nd iteration

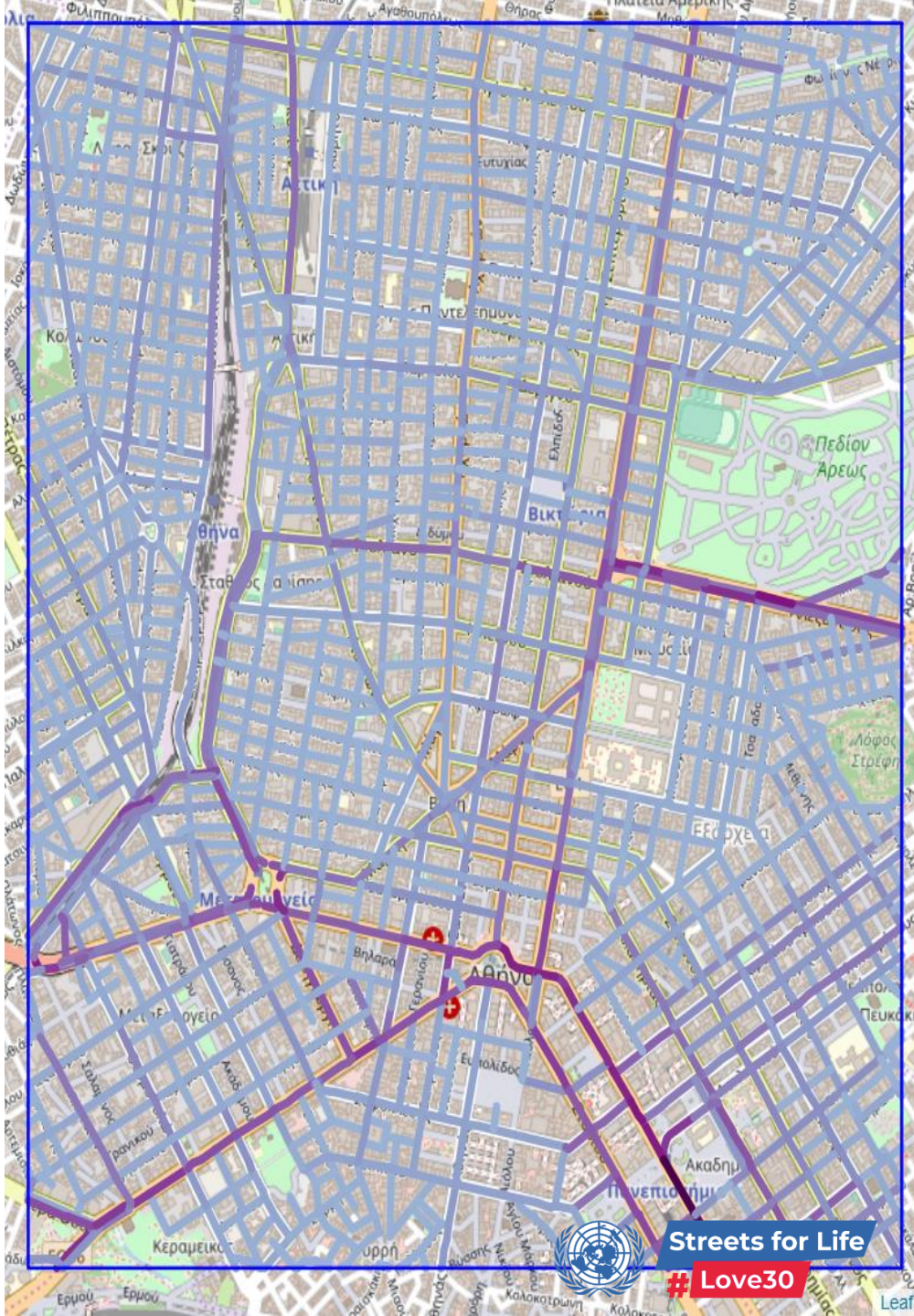
Scope

- SmartMaps aims to:
  1. …exploit large-scale spatio-temporal big data from smartphone sensors in order to…
  2. …develop dynamic maps with readily accessible online information on road safety and eco-driving

- The ultimate goal is to create a complete and comprehensive tool to:
  1. promote safer and more environmentally friendly driving behavior, while simultaneously
  2. render overall traffic more efficient and manageable
  3. be applied in Greece and worldwide

Objectives

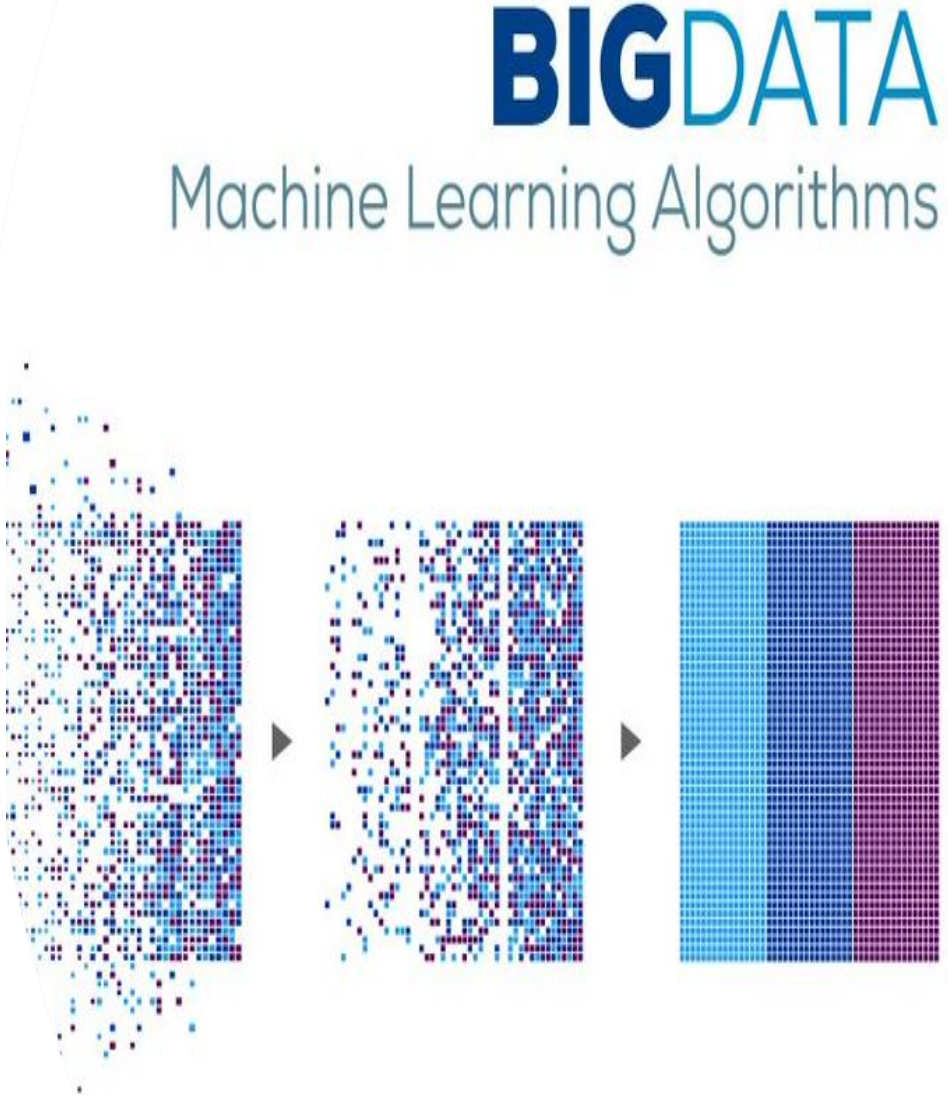
- Integration of high resolution data from various complementary sources
- Naturalistic data collection of daily driving behaviors in real conditions using the OSeven application
- Validation of previous measurements and road conditions by conducting wide field research
- Generalization and transferability investigation by conducting population surveying



Statistical analysis

- Development of statistical models and innovative machine learning algorithms which will consider:
  1. traffic data
  2. road geometry data
  3. road network data
  4. road crash data
  5. wider area/built environment data

- Several scopes to consider:
  1. Macroscopic spatial analysis (across regions)
  2. Mesoscopic spatial analysis (segment scale)
  3. Microscopic behavioral analysis (per driver/sample)



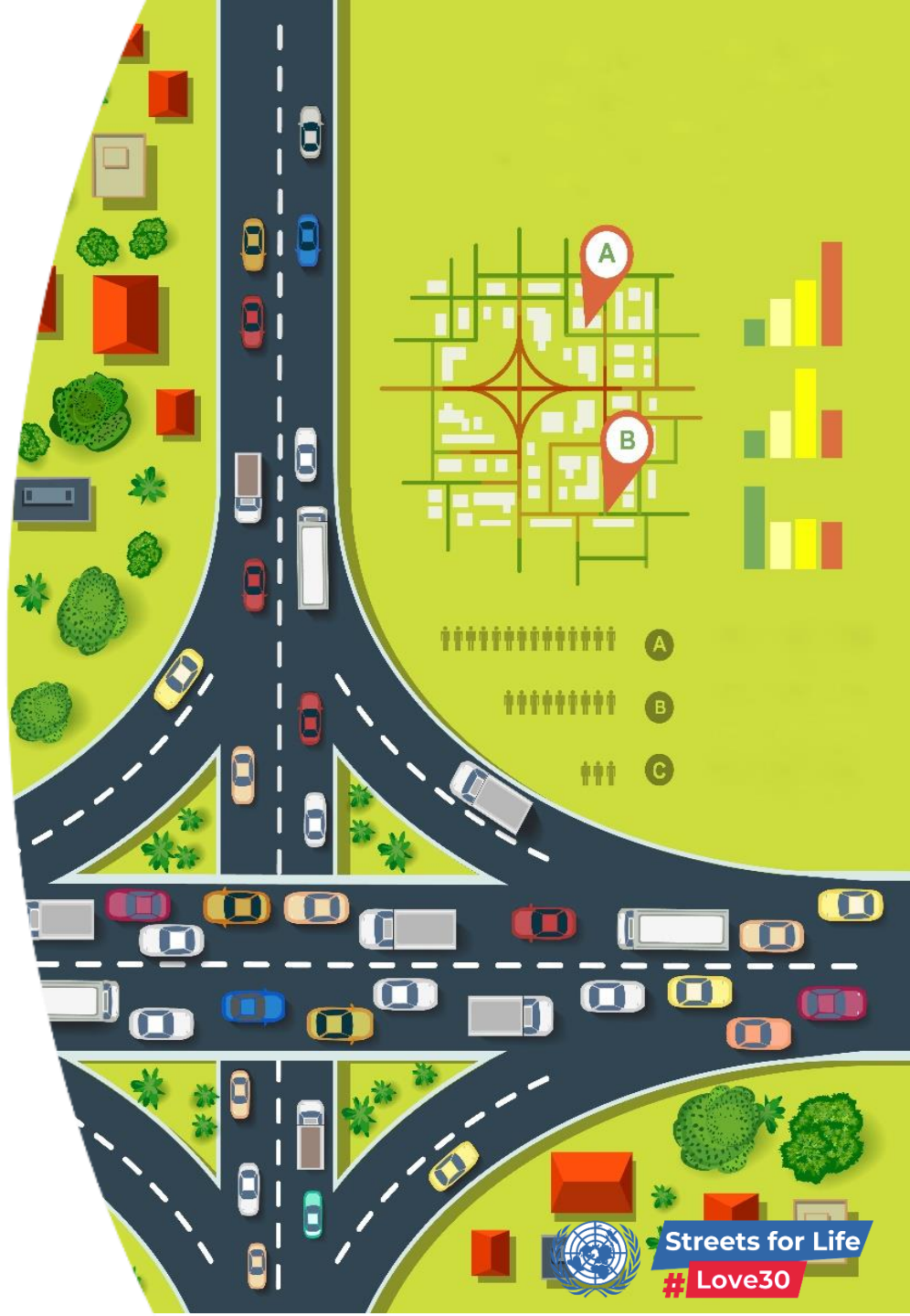
Expected SmartMaps outcomes

- SmartMaps is expected to produce highly exploitable multidimensional outcomes:

1. User-friendly online maps for easy and informative use by all

2. Individual users and authorities are expected to obtain information on the safety levels of each section of the road network and the average fuel consumption for each route

3. Transferable methodology will allow for predictions in areas where no data are available

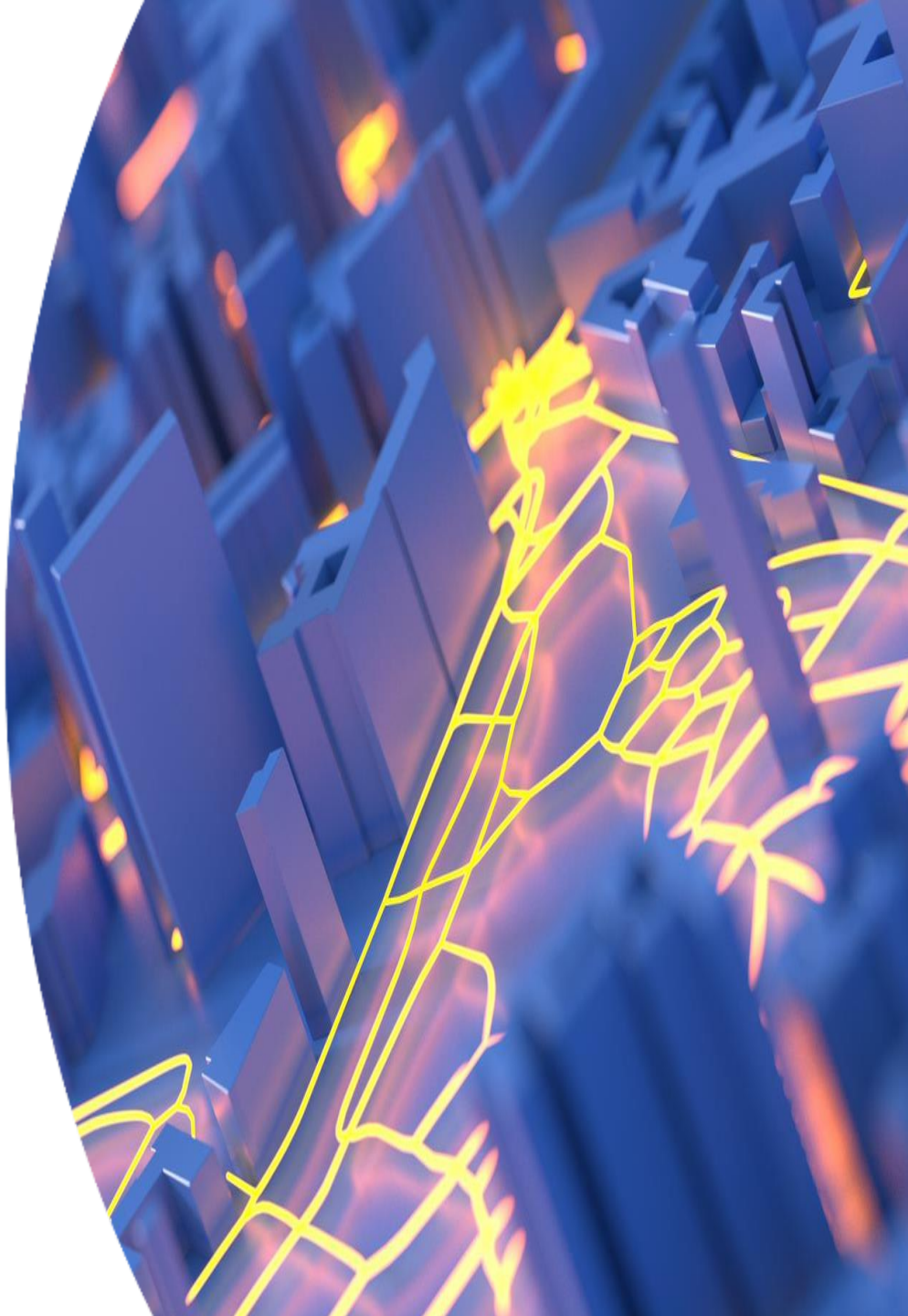


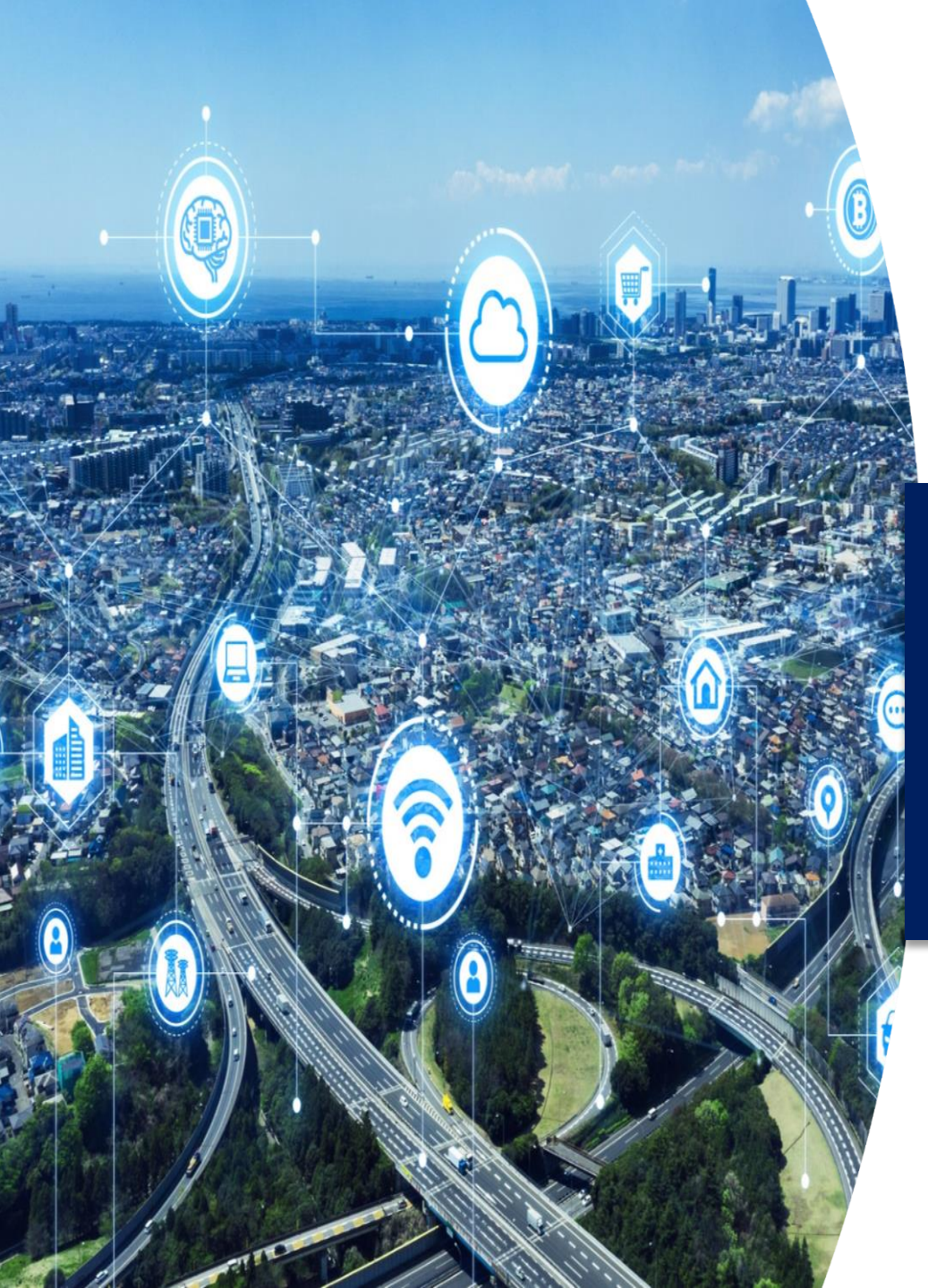
Scientific and Social Impact

- Innovative and intuitive tools for individual road users and decision makers
- Exploitation of multidisciplinary data to assess multidimensional impacts
- Novel scope of scientific approach and analysis
- Exploration of the influence of different policies on safety and environment
- Contribution towards UN and EU SDG goals for crash and fuel consumption reductions (SDGs 9&13)

Future Challenges

- Selection of representative study areas and driver samples
- Methodological topics regarding dataset harmonization and spatial scale normalization
- Development of the SmartMaps application featuring a user-friendly front-end and an efficient back-end
- Provide the use of SmartMaps as a good habit for drivers; promote safer and greener driving





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