Smart city mapping for safer and eco driver behaviour

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Together with:
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The SmartMaps project

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