A methodological framework from data collection to impact assessment of autonomous vehicles

Virtual, 9 -10 September

SUMMER SCHOOL 2020

Foteini Orfanou, Eleni Vlahogianni, George Yannis
National Technical University of Athens
forfanou;elenivl;geyannis@central.ntua.gr

Introduction

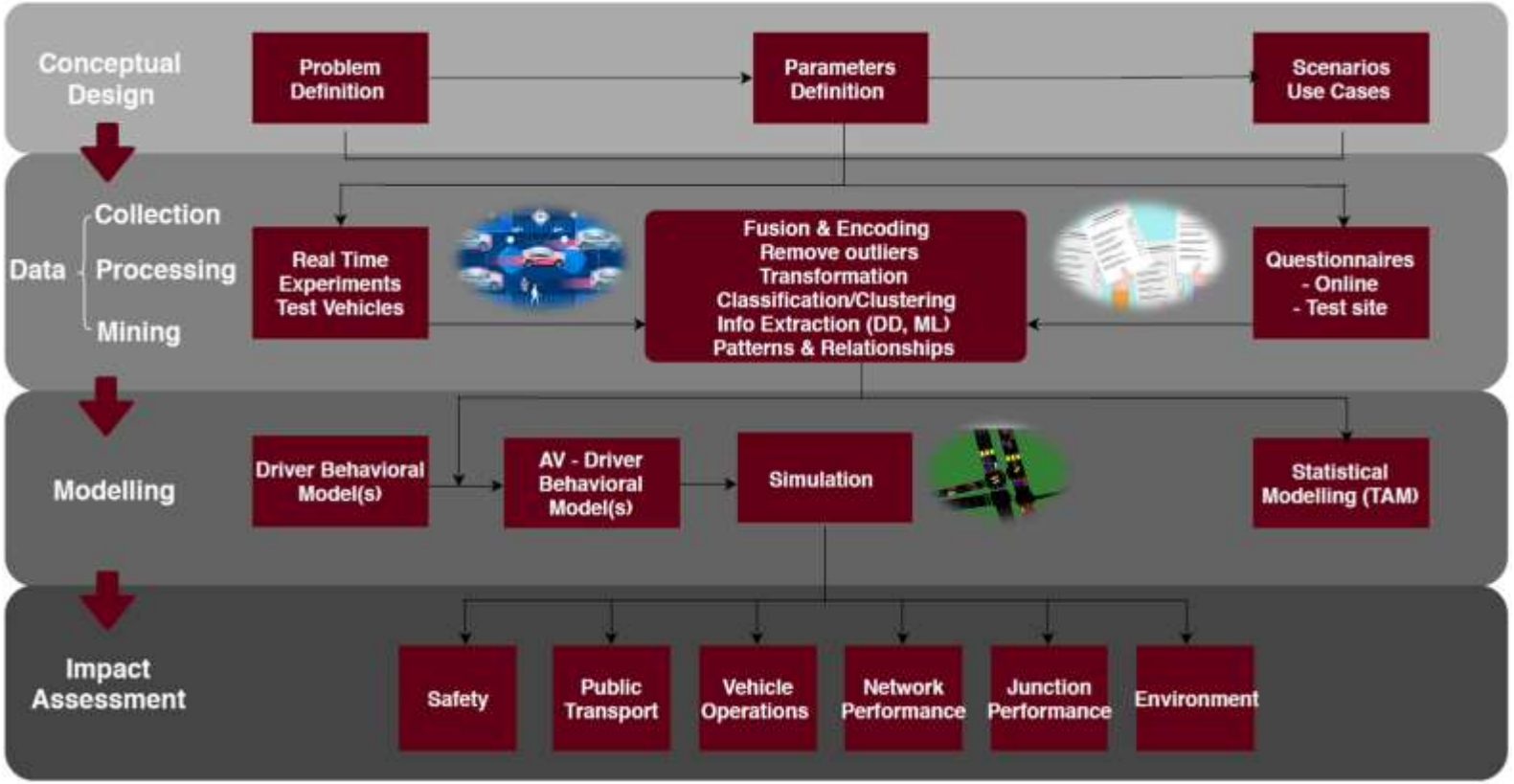
- Autonomous vehicles will change future transportation systems and mobility patterns
- Automation in road sector will influence
  - private passenger vehicles
  - public transportation
  - the interaction between automated, conventional vehicles and VRUs.
- Penetration rate depends on:
  - Impact on traffic, user oriented and environmental aspects
  - Levels of public acceptance

Scope of Work

- Formulation of a methodological framework aiming to:
  - facilitate the evaluation of the acceptance of new AV driving systems
  - assess their impacts to various aspects related to traffic, safety and environment.

  The framework will address the following points:
  - stakeholders requirements
  - users' needs
  - issues of technology and system appropriateness and attractiveness
  - behavioral modeling
  - the quantification of the impacts of automation to traffic, safety and environment.

The methodological framework



Conclusions

- There are various dependencies between service goals and specifications, including, critical parameters monitoring, data collection and processing requirements and service impact assessment.
- The complexity of the autonomous service will determine the variety and volume of data collected, the data processing and mining techniques and modelling needs.
- The overall study of acceptance of AV driving service and its impacts to the system requires a holistic approach which ranges from macro to micro simulation.
- Concerning microsimulation different AV behavioural models should be developed mimicking accepted human driving behaviours and increasing service acceptance.

Thank you for your kind attention.

Foteini Orfanou, Eleni Vlahogianni, George Yannis
National Technical University of Athens
forfanou;elenivl;geyannis@central.ntua.gr

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 723051.