



Introduction

The **EC Horizon 2020 project SHOW** (SHared automation Operating models for Worldwide adoption) aims to **pilot shared automated mobility operating models** for Europe-wide adoption.

Naturalistic **field trials** are underway in 22 European cities during the project. These trials involve real traffic urban and peri-urban shared automated mobility services to explore the integration of Automated Driving vehicles in Public Transport, Demand-Responsive transport, Mobility as a Service, and Logistics as a Service schemes.



SHOW Simulation Suite Conceptualization

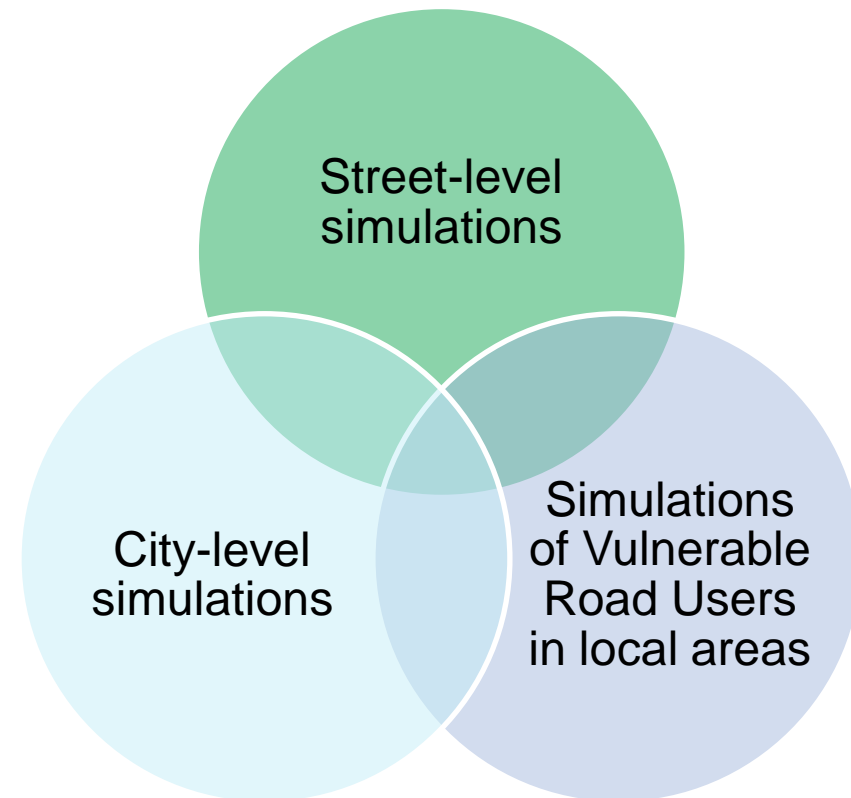


Fig. 1. Simulation categories

Within SHOW, **diverse simulation tools and approaches** were employed to support the real-life pilot implementations, aiming to establish virtual twins. All the simulation efforts were split into **three dedicated categories** (Fig. 1).

Pursuing to exploit this work and knowledge beyond the scopes of the project, the value of integrating it to a **concrete knowledge base and tool** to be used was conceptualized.

To allow this, a methodology to acquire a **common pool of simulation data** from the different use cases, to identify the key parameters and possible methodologies on automated driving simulation and to synthesize the simulations conducted for different pilot sites of the project was required and the development of the SHOW Simulation Suite has adopted an incorporated approach (Fig. 2).

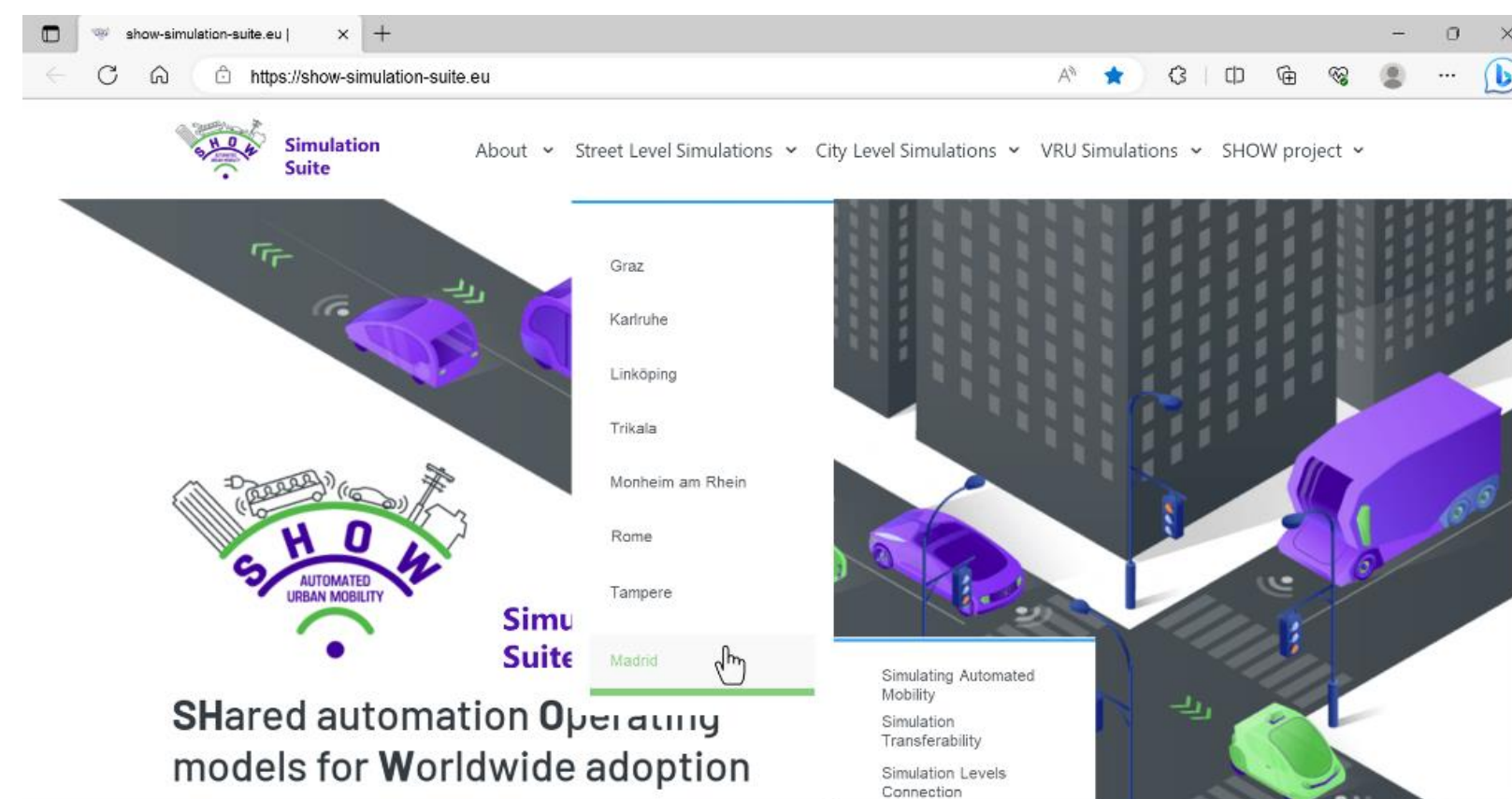


Fig. 2. Structure of the Simulation Suite web tool

Structure of SHOW Simulation Suite

The suite is designed to:

- Offer **comprehensive information** about the possible tools and layers available and used within SHOW project, as well as suitable scenarios, such as varying percentages of automated vehicles penetration, and their potential impacts on traffic flow dynamics.
- Provide **clear guidelines** to assist users in defining their desired use case or study area for studying automated mobility and to further give directions for its simulation.
- Incorporate a detailed explanation of the **mathematical principles** that govern the simulation environments, enhancing user understanding and ability to utilize the tools effectively.

The SHOW simulation suite is designed to comprise **three different layers** (Fig. 3).

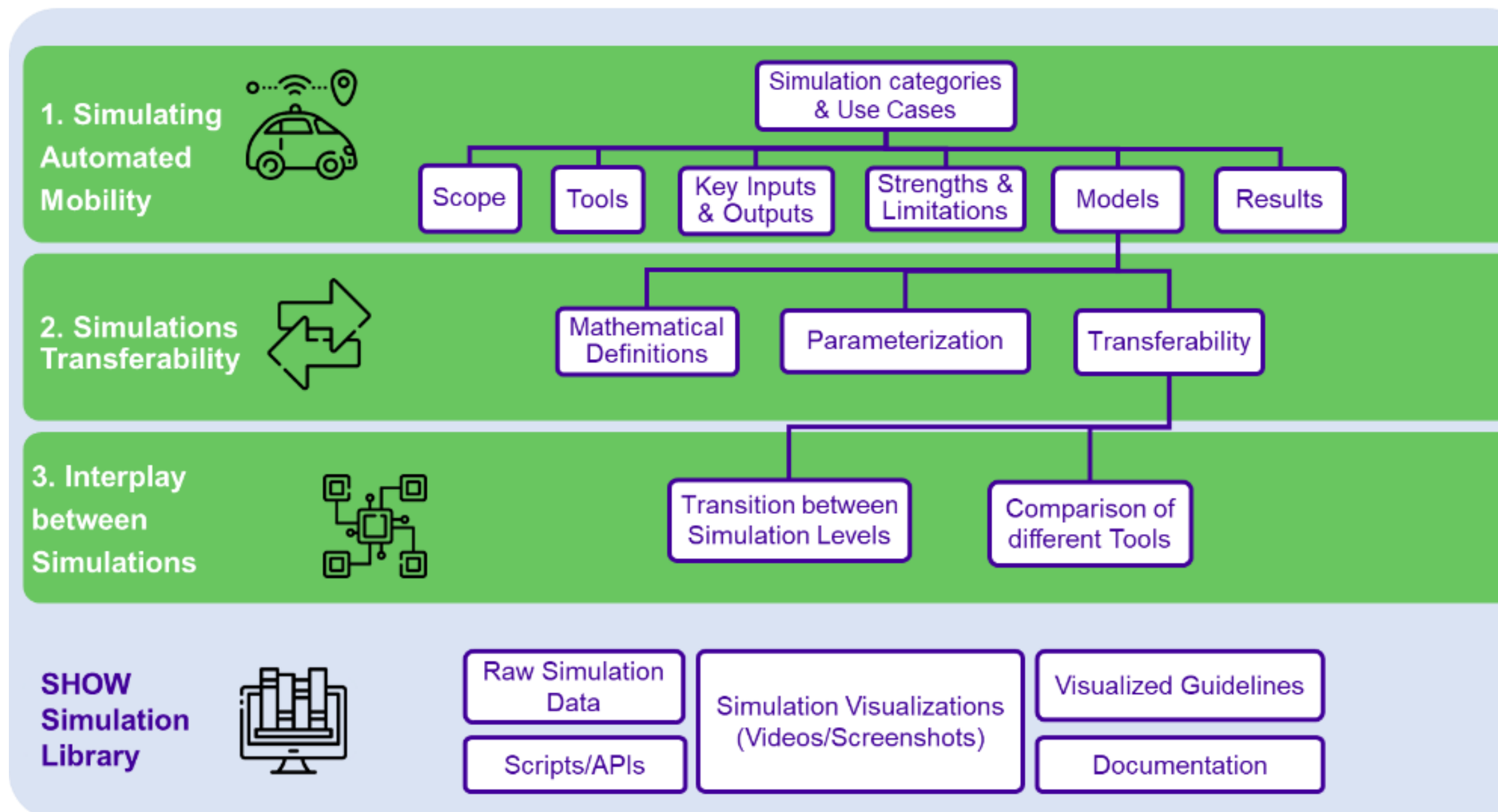
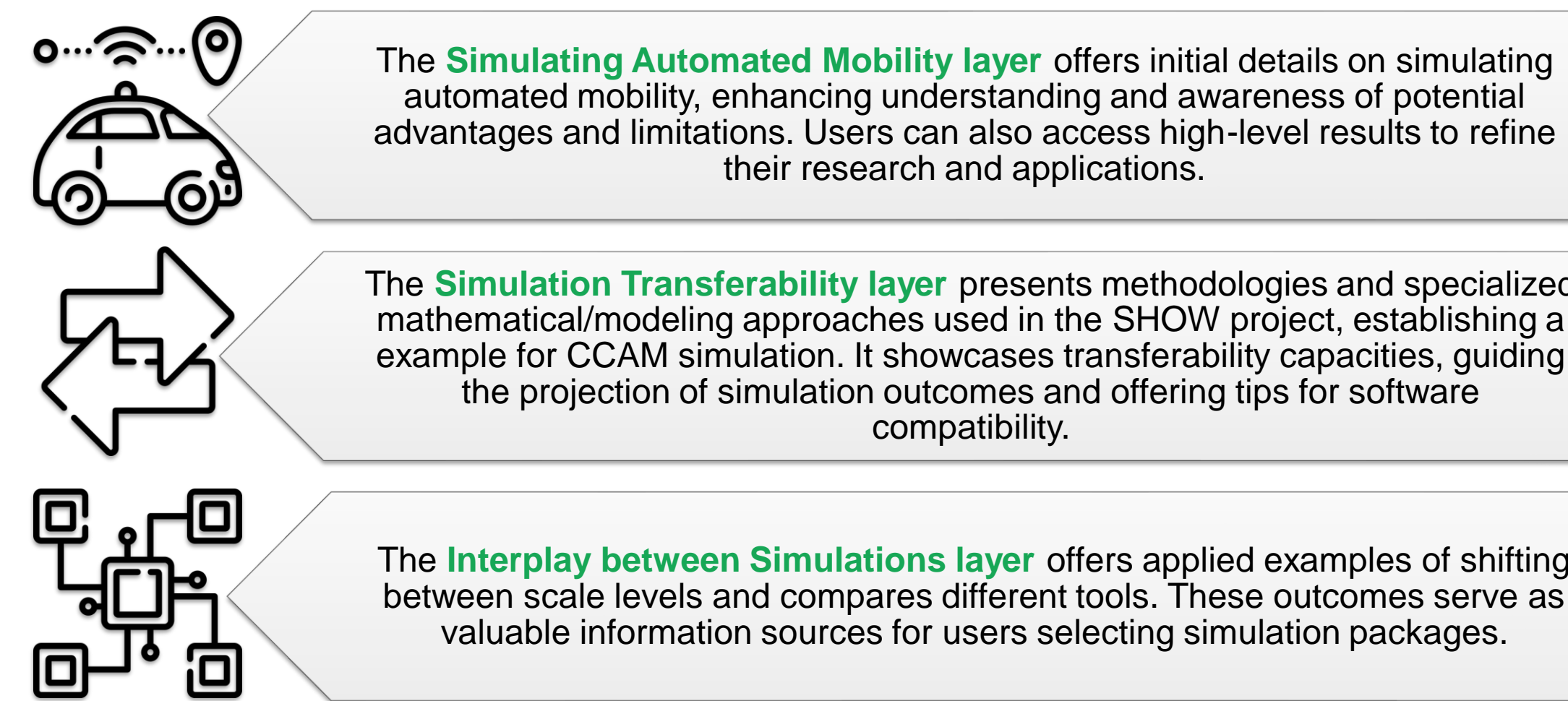


Fig. 3. Components of SHOW Simulation Suite

Through a structured layout, **users embark on an informative journey**, from pilot descriptions as depicted in Fig. 4, to network specifications, data usage, model methodologies, and extracted key performance indicators.

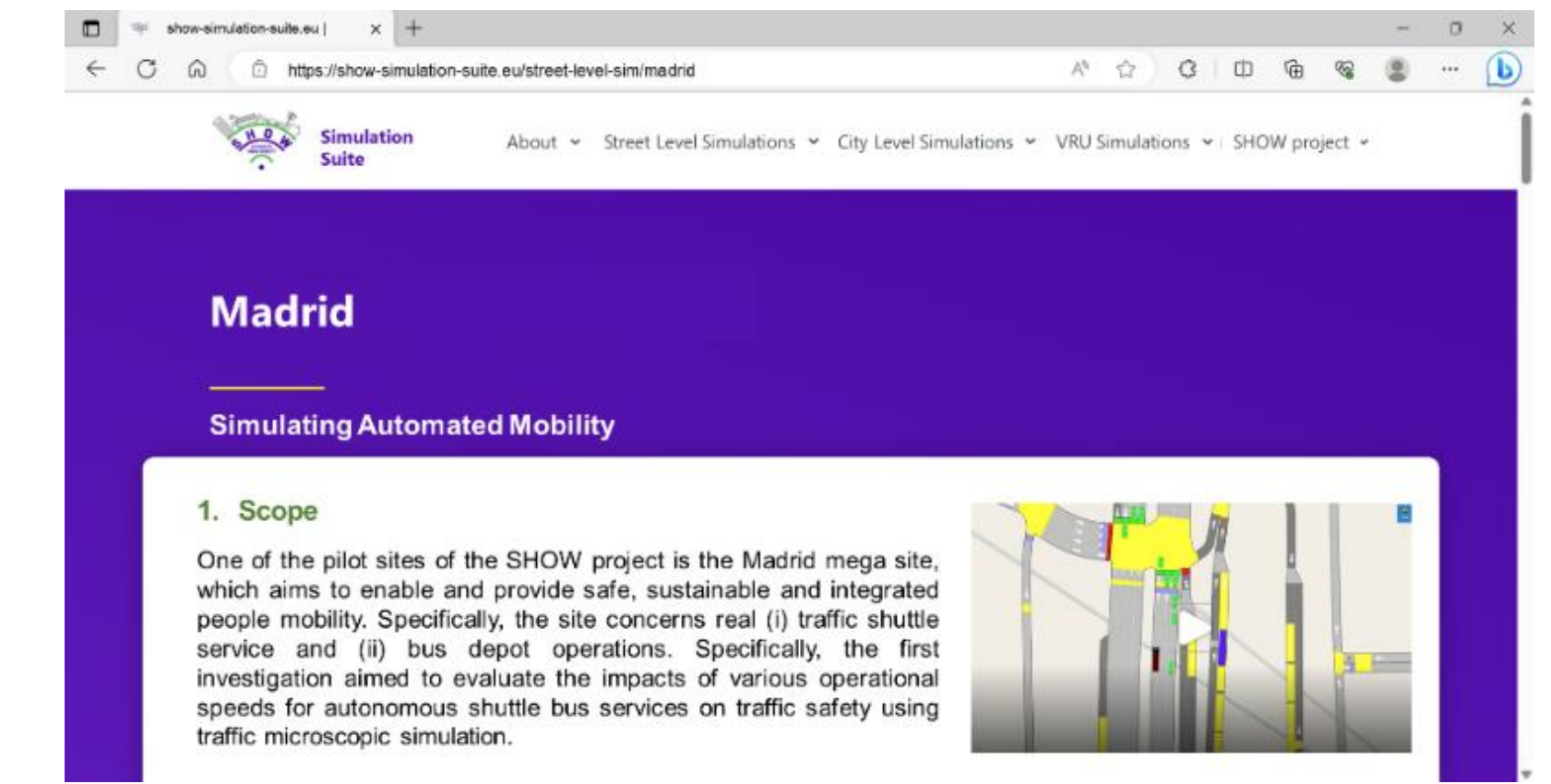


Fig. 4. Simulating Automated Mobility web tool interface – Madrid pilot site: Scope

Conclusion

- The SHOW Simulation Suite is useful for **every researcher who is interested in simulating automated mobility**, regardless of expertise in traffic simulation.
- As more mathematical information are given by the tool, **simulation practitioners** will also gain knowledge through the documentation provided.
- The tool is also beneficial for **city planners and other stakeholders**, such as professionals actively involved in urban planning, policy implementation, or related fields who can utilize the Simulation Suite to inform their decision-making processes and operational strategies.
- Key results from each analyzed use case and level are archived, enabling **interested parties** to guide future city management through appropriate strategies. Therefore, the simulation suite could also inform the future management of cities by using suitable strategies, as transportation systems will be fundamentally affected by the evolution of automated driving.

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