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TOGETHER**

THE PROJECT IS FUNDED BY THE EUROPEAN UNION



**Ukraine** TRANSPORT MASTER PLAN

## **WORKING GROUP ON FREIGHT TRANSPORTATION SUPPORTING TRANSPORT POLICY IN UKRAINE**

### **EU Assistance to Ukrainian Authorities for National Transport Model and Masterplan**



A project implemented by

Egis International

in association with



Odessa, 26 May 2021

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# OUTLINE

Introduction

EU Green Deal

Ukrainian NTS 2030

National Transport Model

# COMPONENTS AND RESULTS

**Component 1** - Description and analysis of existing transportation conditions by conducting field-surveys for all transportation modes and by collecting needed data for transportation modelling and planning – **PROBLEM DIAGNOSIS**

**Component 2** - Establishment of a national multi-modal transport model – **DATA WAREHOUSE AND NATIONAL TRANSPORT MODEL**

**Component 3** - Develop national transport master plan to define priority measures for developing modern transport sector and transport infrastructure – **NATIONAL TRANSPORT MASTERPLAN**

**Component 4** - Assistance for the implementation of the plan concerning capacity building to establish a national system to deal with the new model and master plan – **INSTITUTIONAL AND LEGISLATIVE FRAMEWORK**

**Component 5** - Pilot implementation of the model and masterplan – **PRE-FEASIBILITY STUDIES**

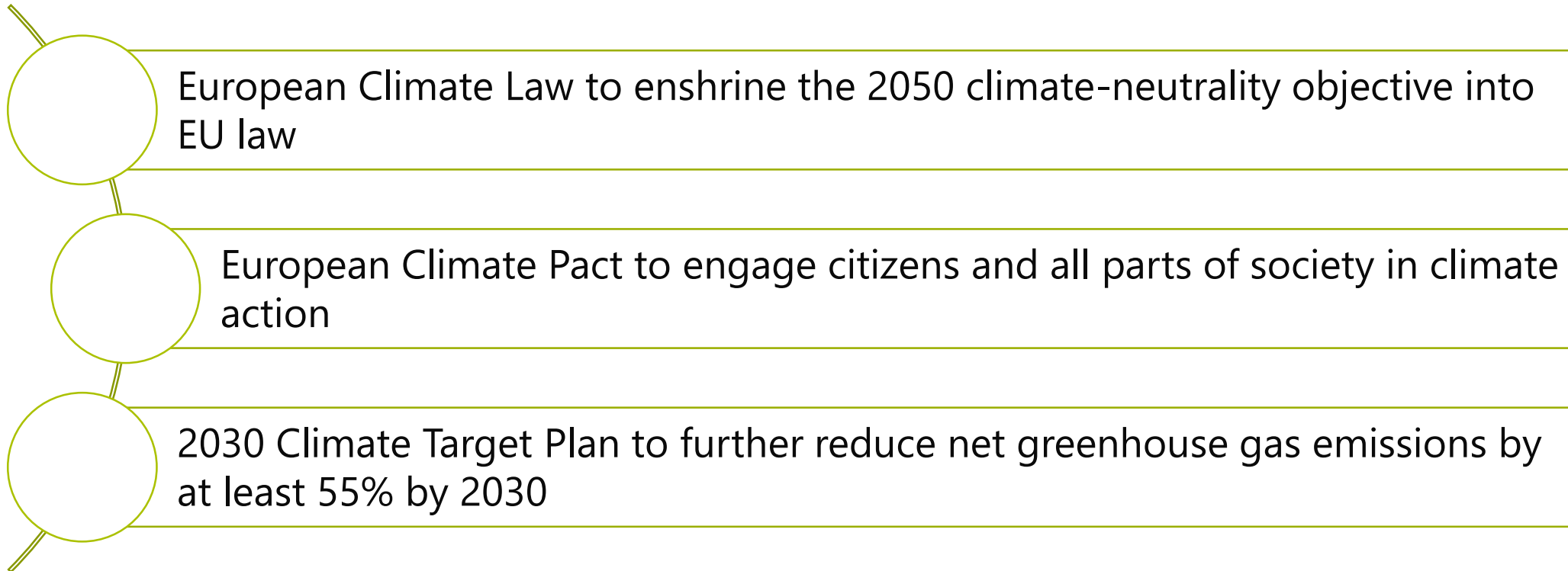
**Component 6** - Stakeholders involvement, dissemination and visibility, related to the implementation of this project – **HEIGHTENED AWARENESS ABOUT MASTERPLANNING**

# THE EUROPEAN GREEN DEAL

## Action Plan in Achieving Climate Neutrality by 2050 #

- ✓ there are no net emissions of greenhouse gases by 2050
- ✓ economic growth is decoupled from resource use
- ✓ no person and no place is left behind
- ✓ cutting greenhouse gas emissions by at least 55% by 2030

# FIRST CLIMATE ACTION INITIATIVES

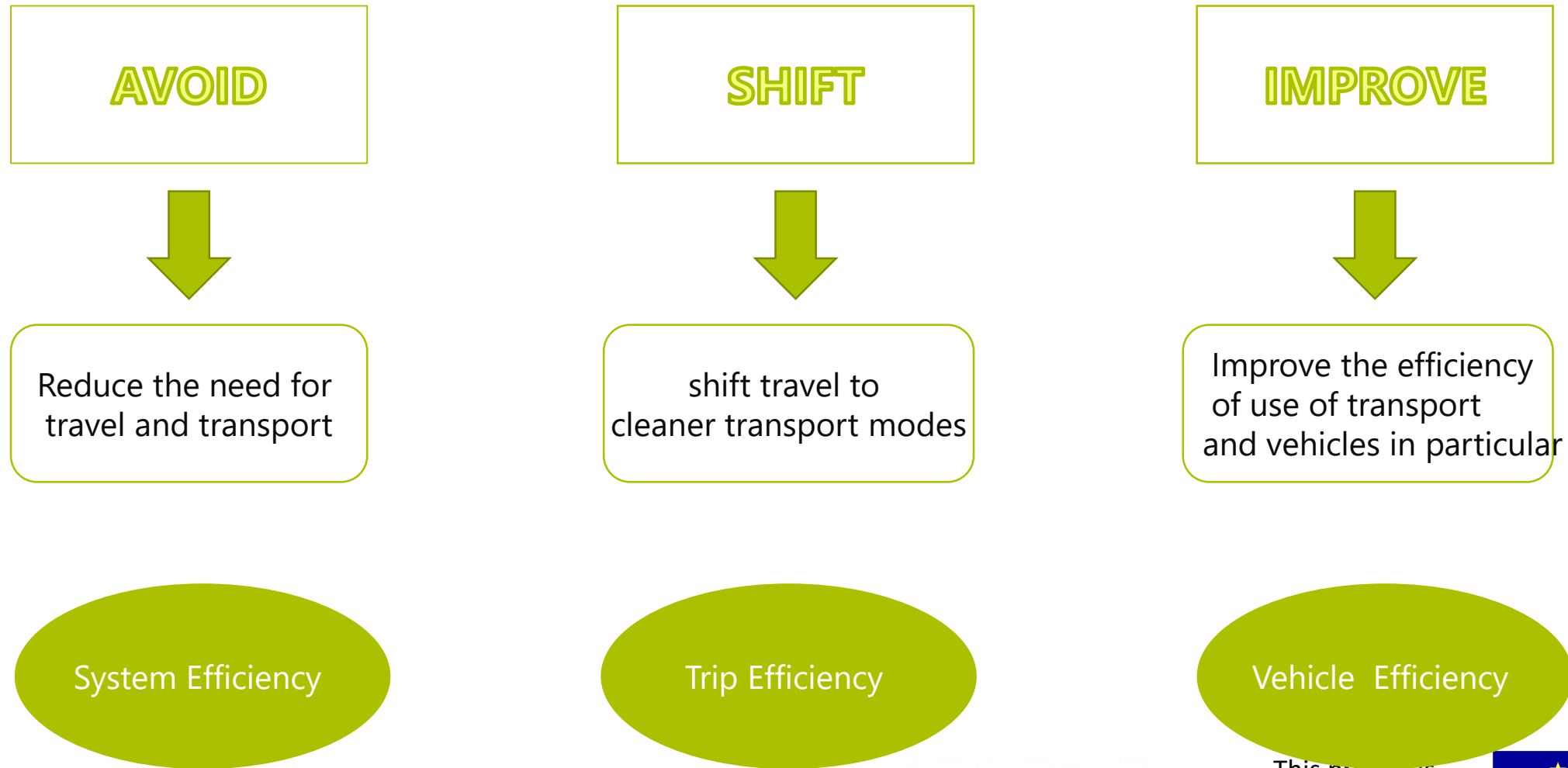


# UKRAINE PARTICIPATION IN EUROPEAN GREEN DEAL

## Green Transformation of Ukraine

- Already committed in the framework of multilateral actions (the Paris Agreement, the UN Sustainable Development Goals 2030, and the EU-Ukraine Association Agreement)
- Highlighted its interest in be involved in the European Green Deal (President Announcement to decarbonize its economy between 2050 and 2070)
- Set up the Ukrainian Green Deal Task Force in spring, 2020, lead by Vice Prime Minister and Deputy Ministers for European Integration

# IMPLICATION OF GREEN DEAL FOR TRANSPORT SECTOR OF UKRAINE: A-S-I POLICY FRAMEWORK FOR POLICY CHOICES



# NATIONAL TRANSPORT STRATEGY 2030

*“The Strategy objective is to create a **safe** and **efficient** transport complex of Ukraine, which would be **integrated into the world** transport network, meeting **people’s needs** in transportation services, and improving the conditions of doing business in order to ensure **competitiveness and efficiency of the national economy**. ”*

1. Implementation will be in line with Ukraine`s approach to the EU association
2. Implement the Association Agreement and create conditions contributing to the gradual integration of Ukraine into the EU internal market;
3. Increase the quality of the transport services,
4. Carry out the efficient implementation of:
  - Administrative reform,
  - Anti-corruption measures,
  - Transparent decision-making,
  - Clear distribution of functions and allocation of powers between executive authorities and business entities,
  - Establishment of equal conditions for the transport services.



## STRATEGY IDENTIFIES FOUR PRIORITY AREAS:

- I. Competitive and efficient transport system;
- II. Innovative development of the transport industry and global investment projects;
- III. Safe, clean and energy-efficient transport;
- IV. Seamless mobility and interregional integration.

# THE NATIONAL TRANSPORT MODEL

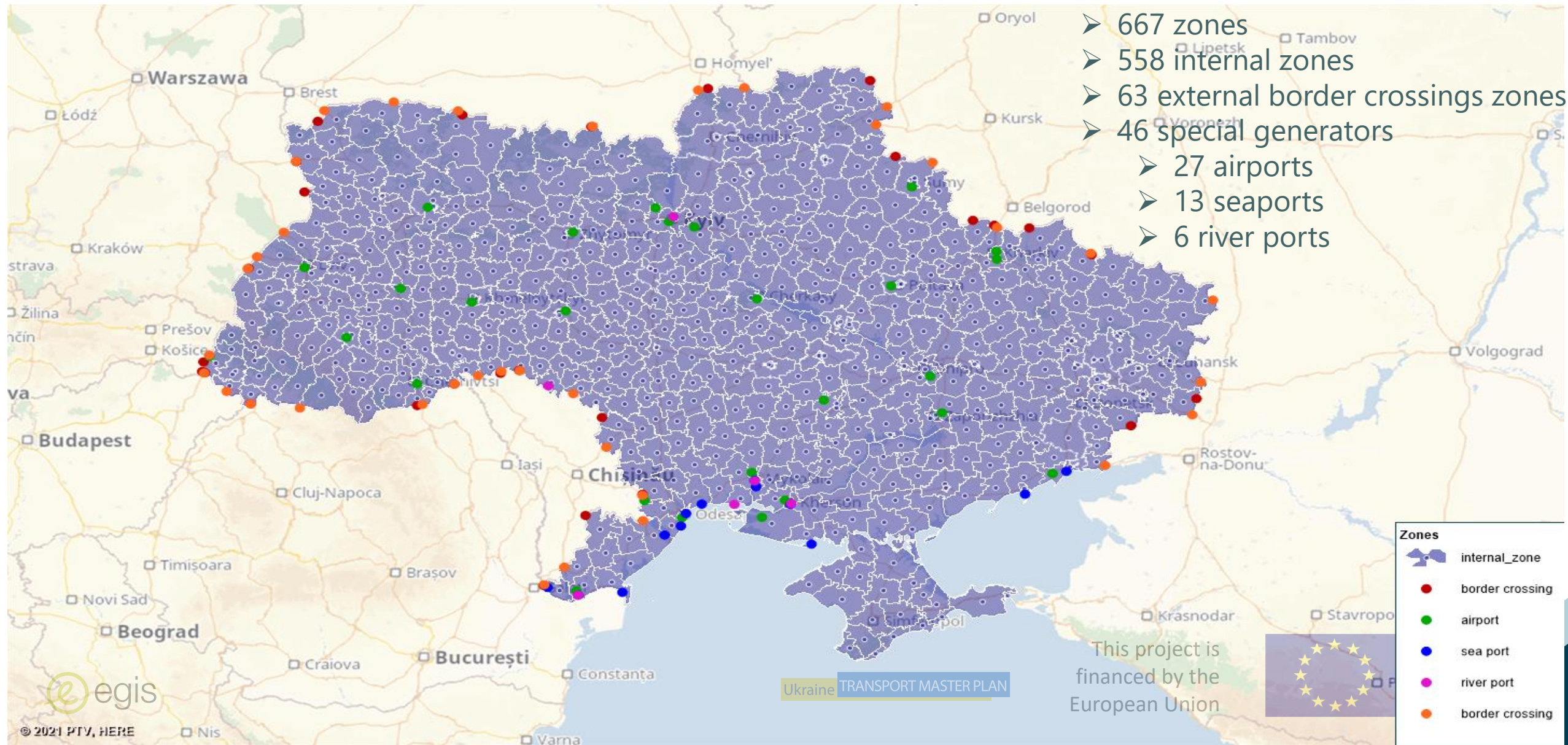
- I. Collection of Data
- II. Development of Network Model
- III. Development of Passenger Demand Model
- IV. Development of Freight Demand Model
- V. Assignment: Calibration and Validation of the Model
- VI. Development of Forecast Model 2025 and 2030 (Do Minimum)
- VII. Development of various scenarios

# THE TYPE OF THE MODEL

Multimodal 4 step model consists of:

- Passenger Model
- Freight Model

# SPATIAL DIVISION



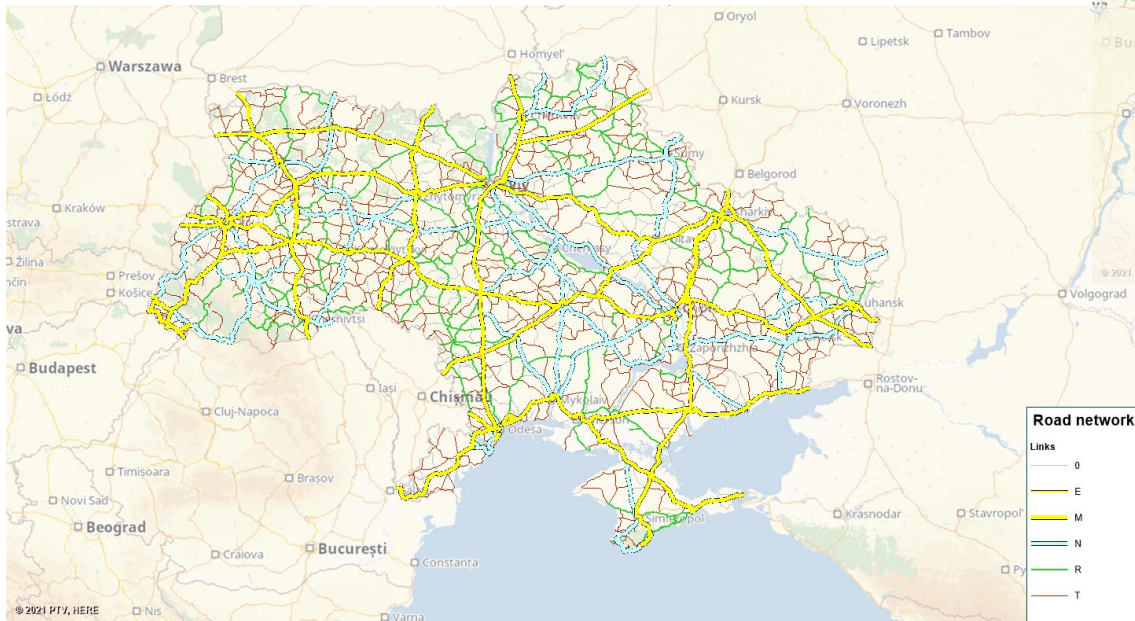


# TRANSPORT SUPPLY

## Infrastructure Network

Main network of the model consists of:

- Road network: 27,835 links (both directions)
- Rail network: 26,415 links (both directions)

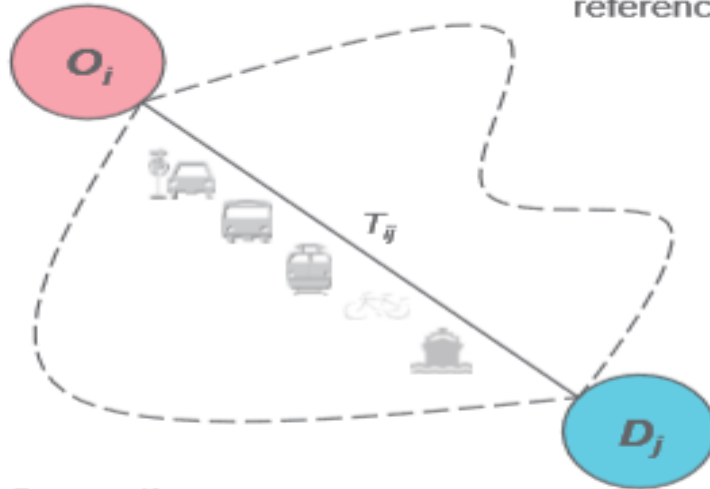


# PASSENGER MODEL

## PASSENGER DEMAND (METHODOLOGY)

### Trip Generation

Origin production<sub>purpose</sub> = observed mobility rate<sub>purpose</sub> \* number of reference persons - population, employees



### Trip Generation:

Destination attraction<sub>purpose</sub> = attraction rate \* number of reference socioeconomic data

### Assignment

= F (generalized cost, path search, capacity restraint...)



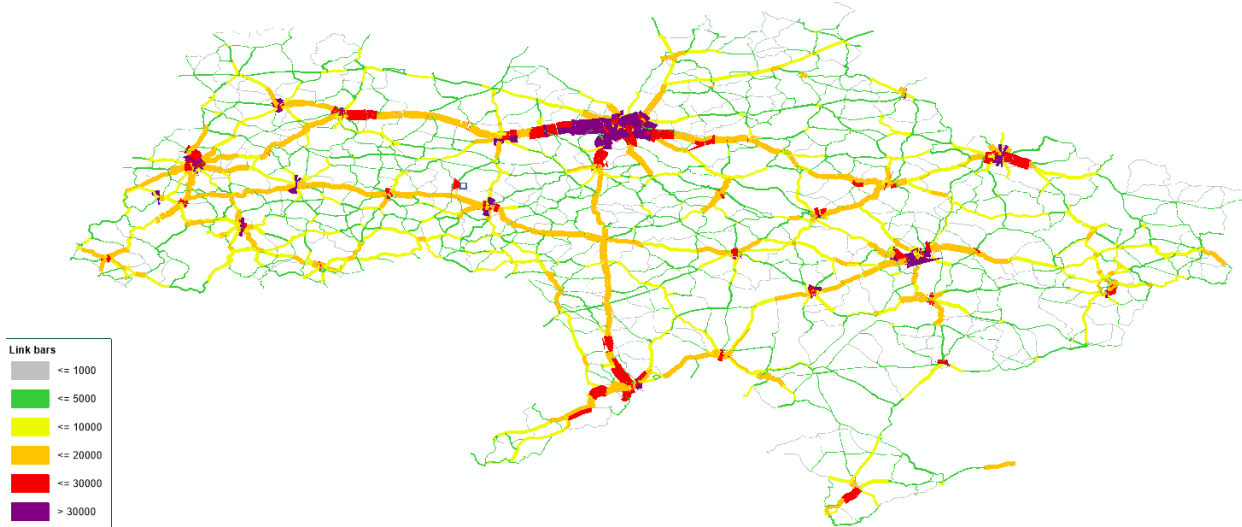
### Trip Distribution and Mode Choice

Distribution<sub>purpose</sub> and mode choice<sub>mode</sub> = F (generalized impedance, observed trip distribution, observed modal split)



# PASSENGER MODEL RESULTS

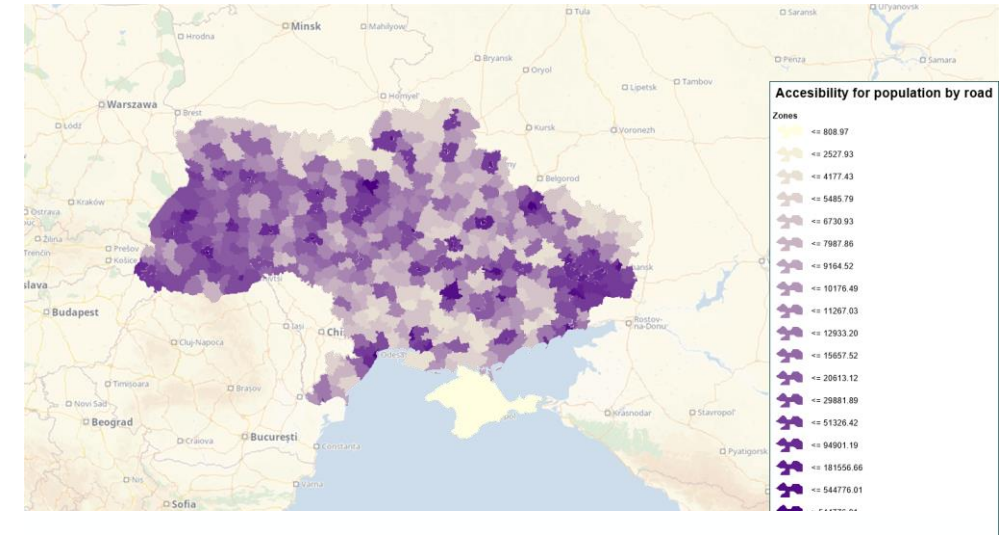
## Traffic Flow CAR



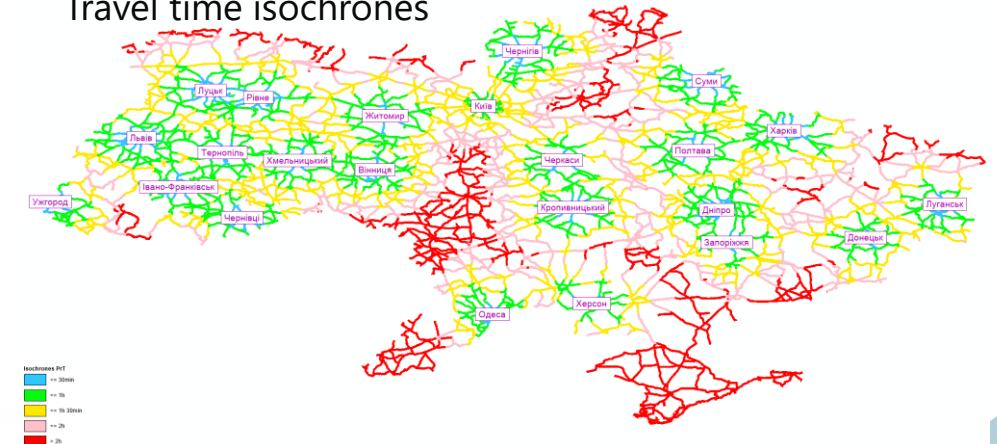
## Passenger traffic indicators

- Number of trips by transport mode and per purpose
- Traffic volumes on the network by mode
- Passenger kilometers and hours by transport mode
- Vehicle kilometers and hours cars,
- LOS (V/C ratio)
- Isochrones
- Effective density

## Accessibility



## Travel time isochrones

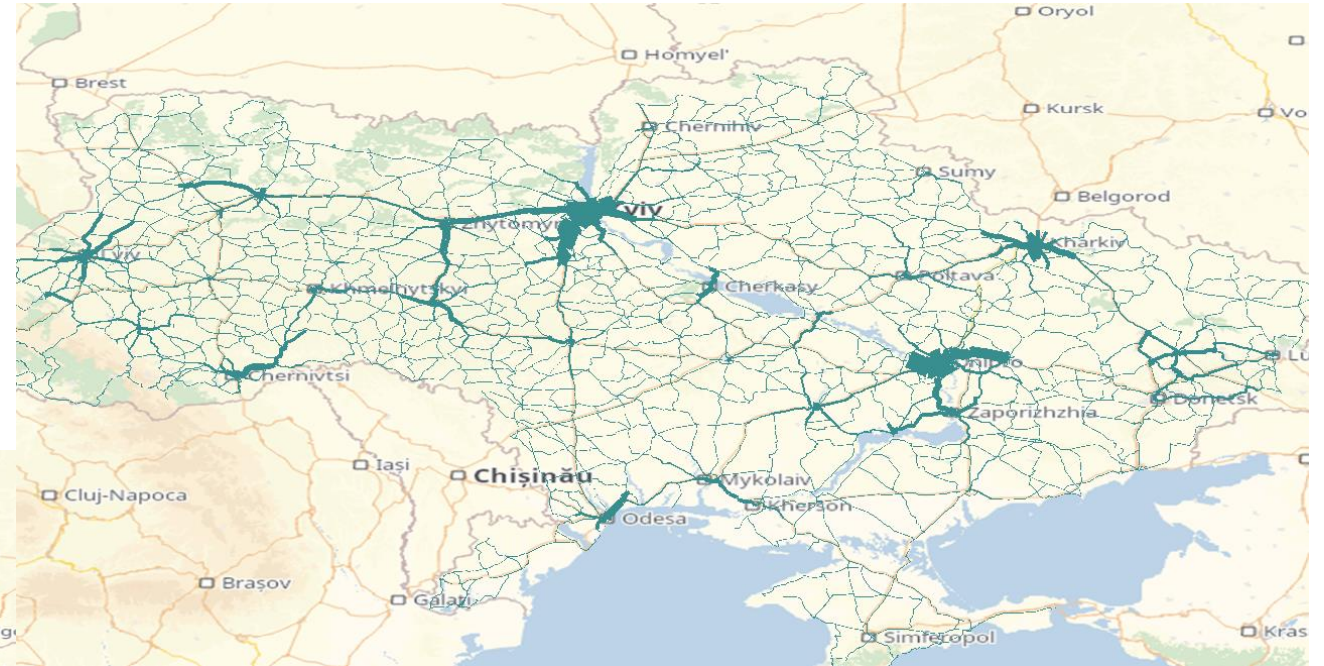
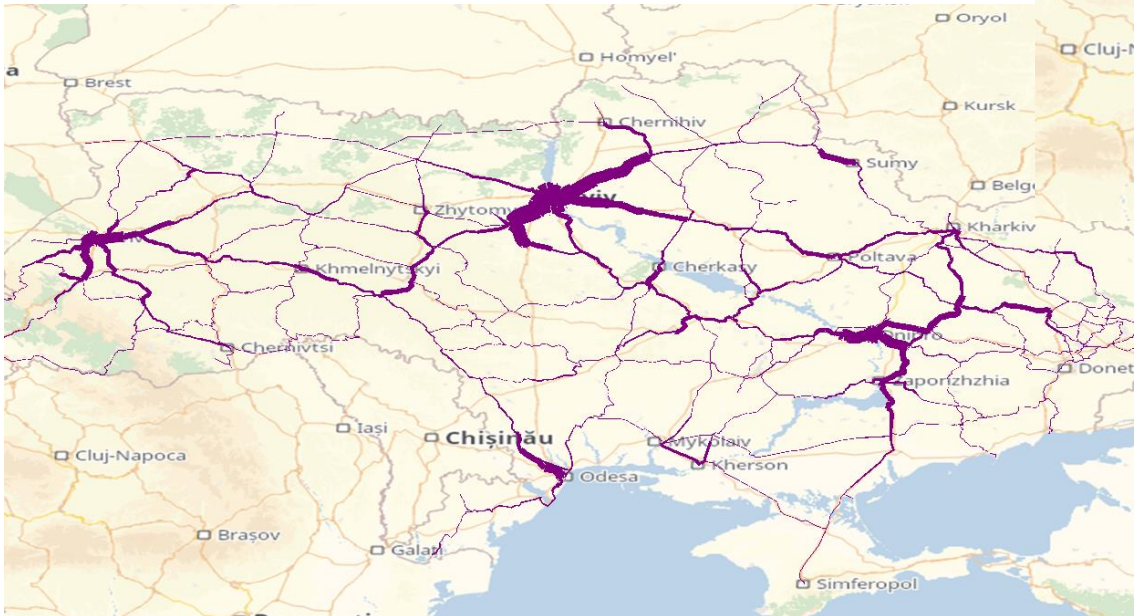




# PASSENGER MODEL RESULTS

## Bus and Rail Passengers

rail



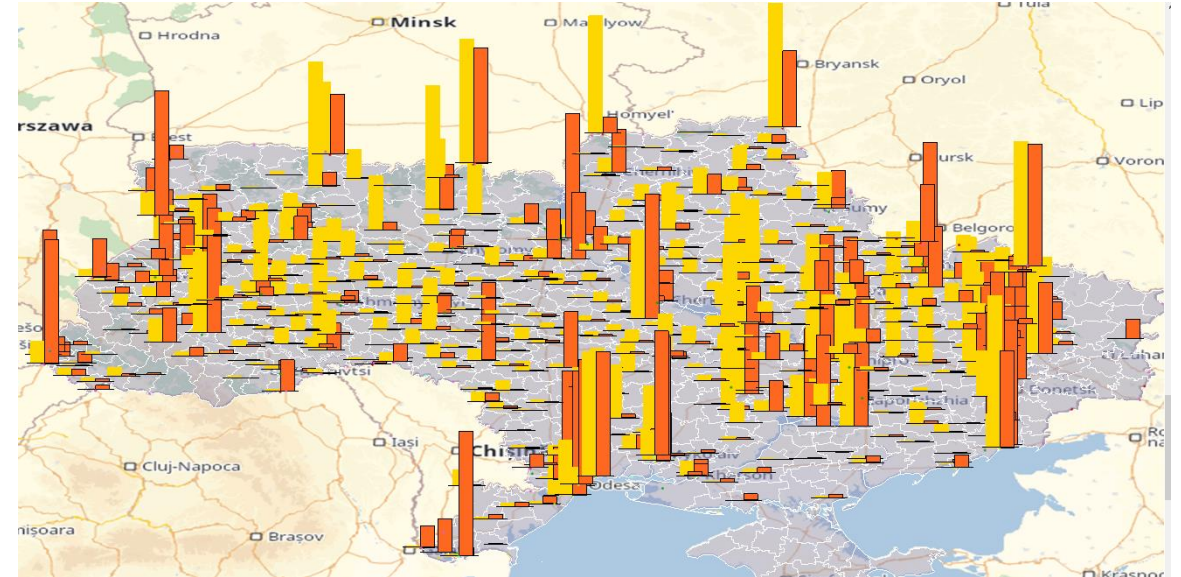
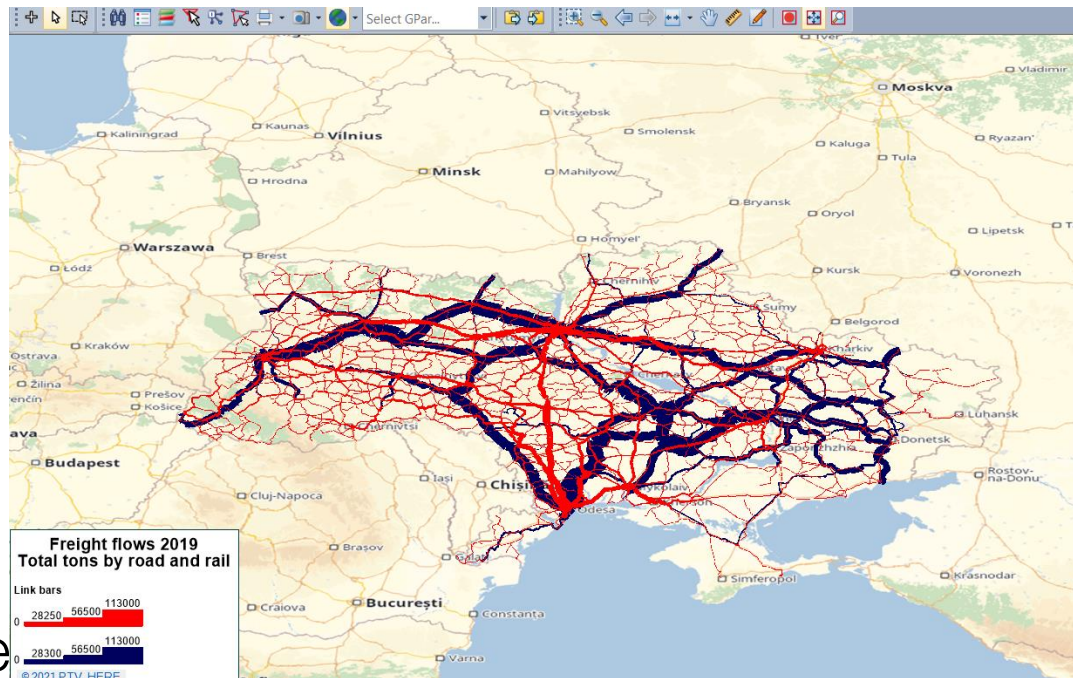
bus



# FREIGHT MODEL RESULTS

## Freight traffic indicators

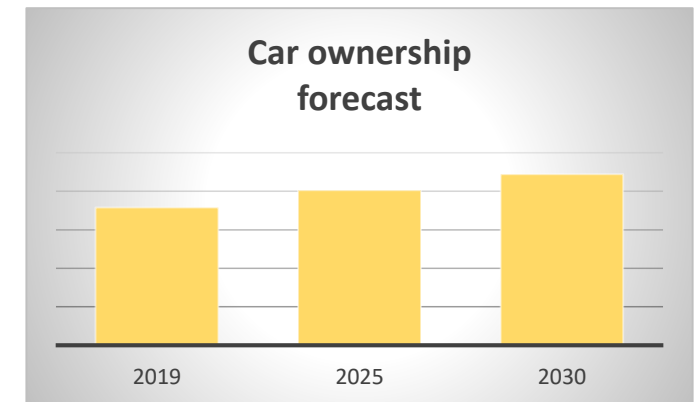
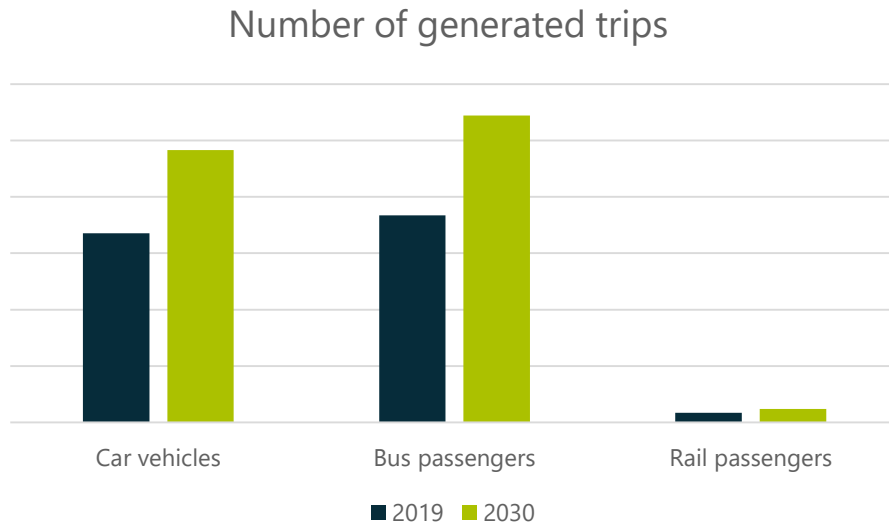
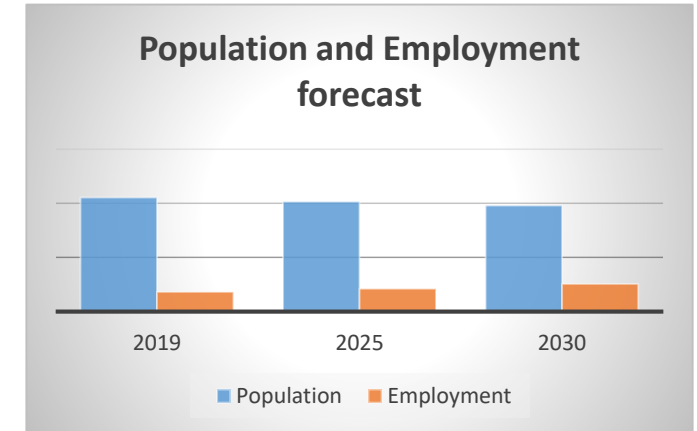
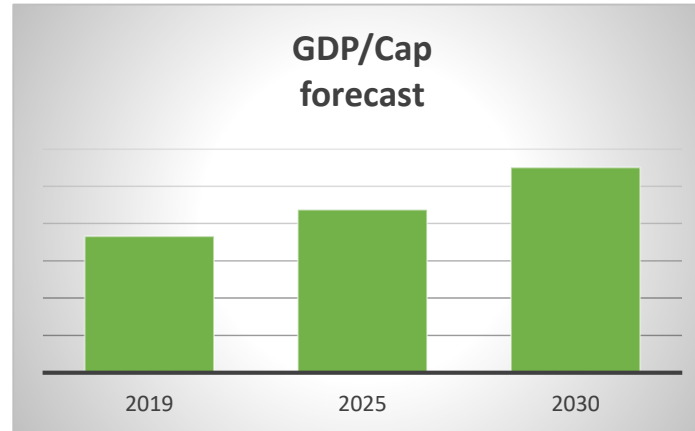
- Transported tons by mode and by commodity
- Ton kilometers by mode
- Vehicle hours HGV, LGV
- Ton hours by mode



Origin/destination freight traffic by rail

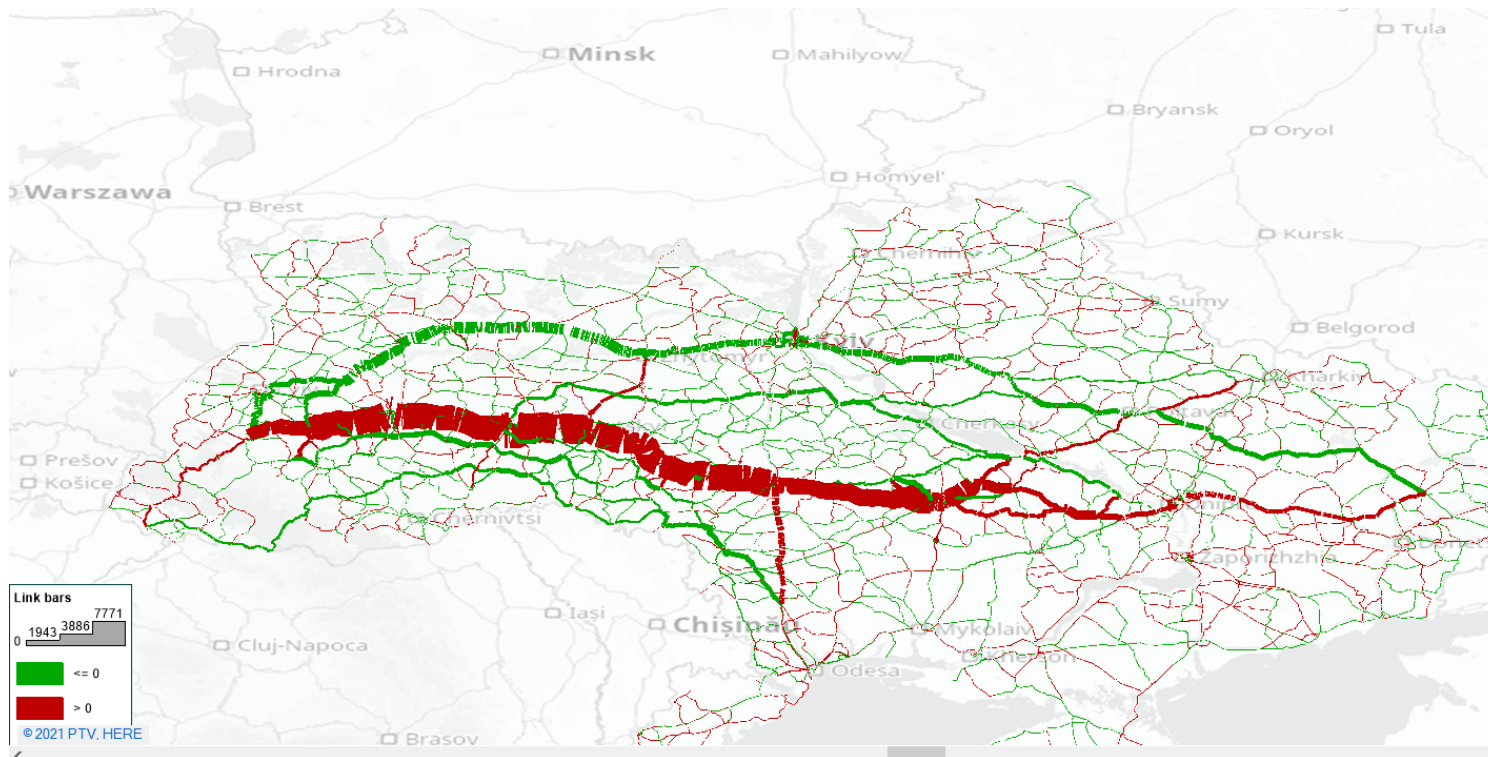
# DEMONSTRATION - PASSENGER MODEL

- Case 1 - Changes in demand resulting from population, employment, car ownership and GDP growth

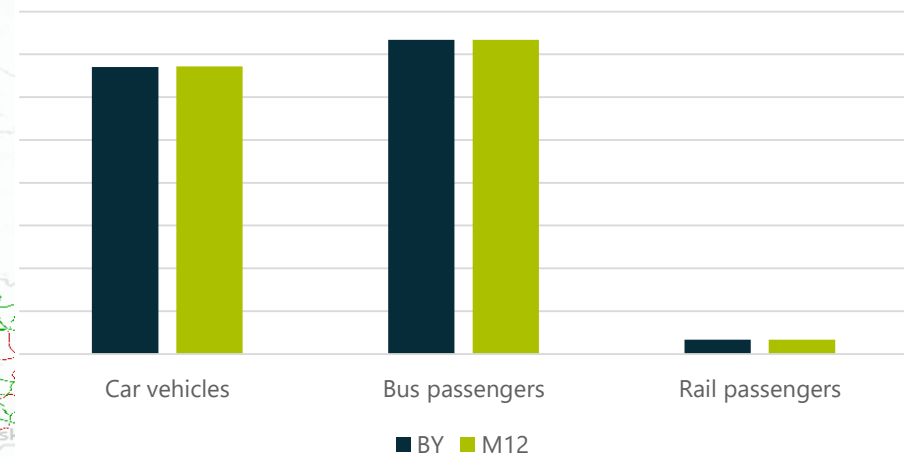


# DEMONSTRATION - PASSENGER MODEL

- Changes in road conditions – change of speed on the road M-12 to 120 km/h, 2x2 lanes

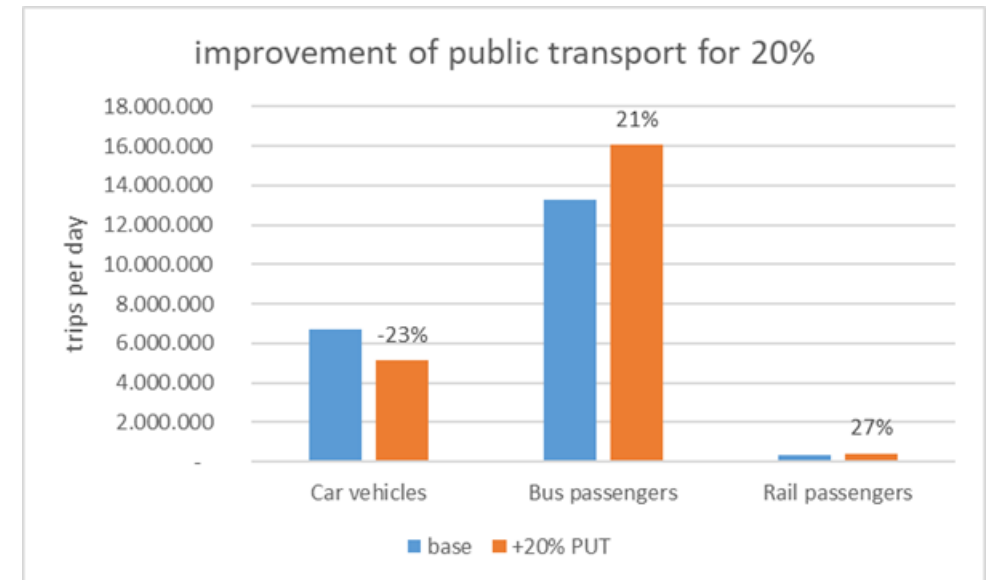
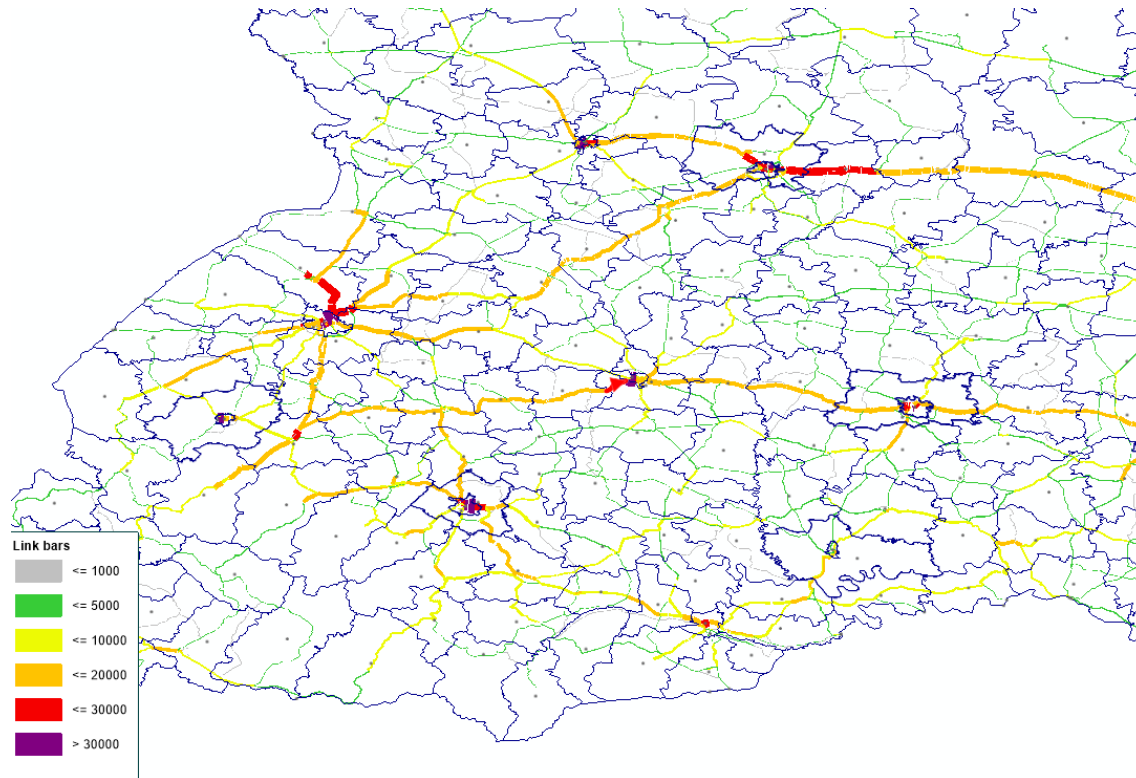


Road M-12 - 120 km/h



# DEMONSTRATION - PASSENGER MODEL

- Case 3 - Changes in travel time by PuT for -20%





# DEMONSTRATION – FREIGHT MODEL

- Case 1- Effect on transport of cargo due to doubling of cargo volumes in port of Odessa

