



***Rethinking the design of streets and public spaces to leverage the modal shift to climate-friendly active transport everywhere***  
***Asist. Prof. Luka Novacko***

Coordinator of the project: UCD (Prof. Francesco Pilla)



# PROJECT OVERVIEW

12.5  
Million

38  
Partners

10  
Pilot cities



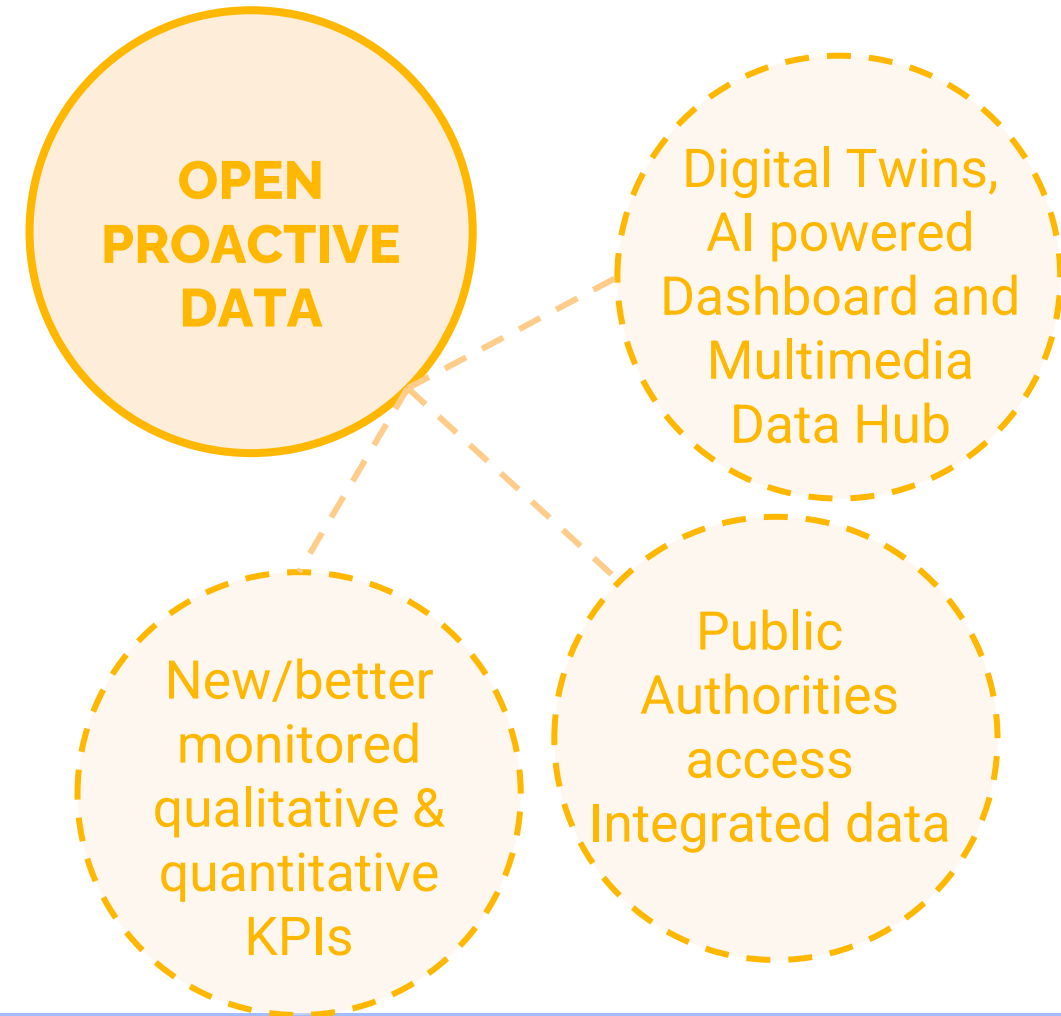
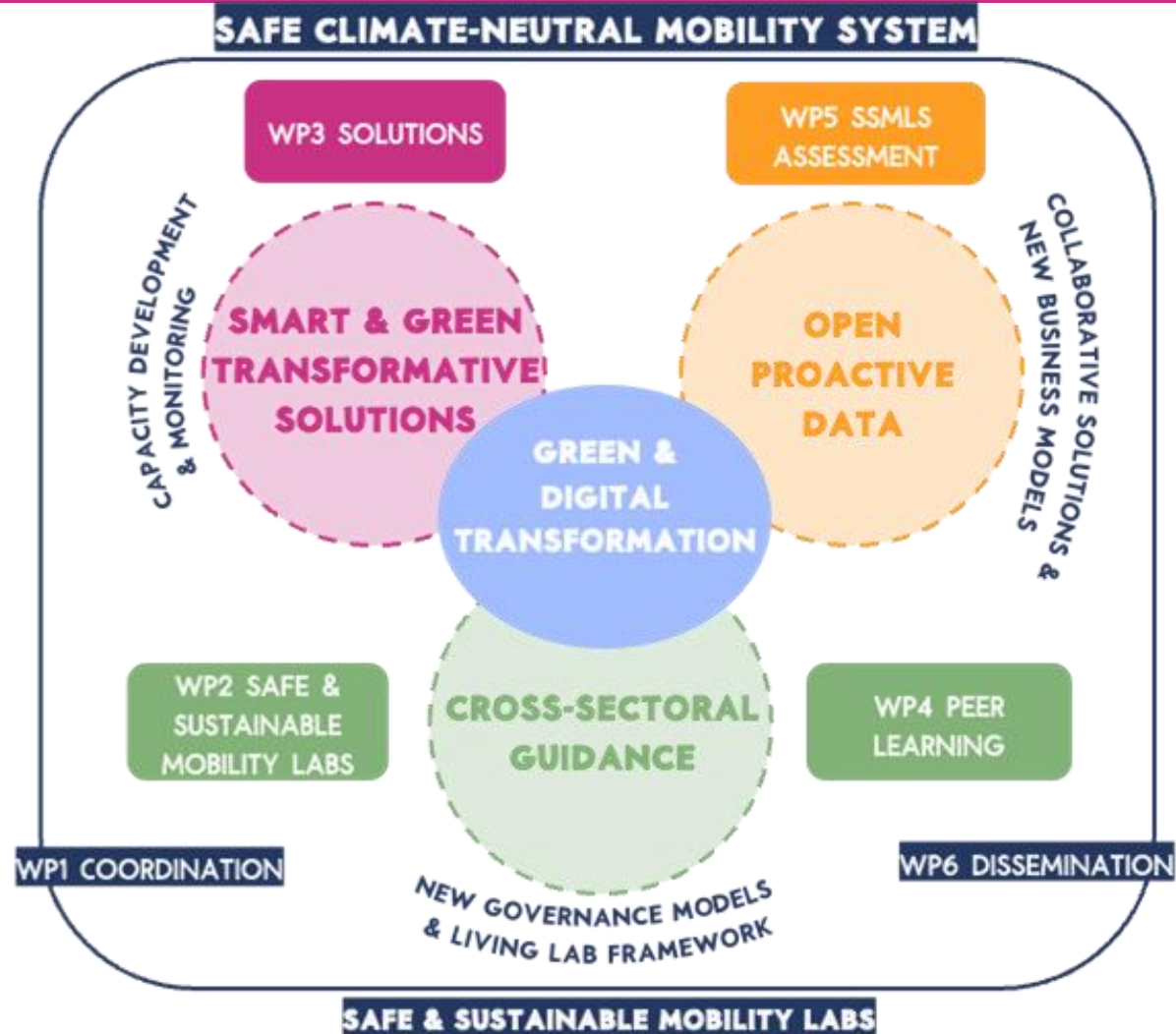
Designing inclusive, safe, affordable and sustainable urban mobility

TOPIC ID: HORIZON-MISS-2022-CIT-01-01

**REALLOCATE's main objective is to pave the way towards climate-neutral, safe and smart EU cities through integrated, innovative and inclusive sustainable urban mobility solutions that will address the needs of diverse groups and communities, while rebalancing the street/public space allocation.**



# PILLARS & WORKPACKAGES



# SAFE & SUSTAINABLE MOBILITY LABS

SMART & GREEN TRANSFORMATIVE SOLUTIONS



# EMPOWERING CITIES TO ACHIEVE SAFE & SUSTAINABLE MOBILITY

CROSS-SECTORAL GUIDANCE

100+12 CLIMATE-NEUTRAL AND SMART CITIES BY 2030

Designing inclusive, safe, affordable, and sustainable urban mobility

<b>SUMP &amp; space reallocation</b> Cerema	<b>Urban design &amp; traffic calming</b> Arup	<b>Pedestrians &amp; inclusive design</b> IFP	<b>Cycling policy</b> ECF	<b>Urban road safety &amp; safety auditing</b> Cerema & DEKRAb	<b>Digital tools &amp; new mobility services</b> Ertico	<b>Behaviour &amp; choice design</b> Nudgd
<b>Citizen empowering planning</b> UCD	<b>Transport economics &amp; business models</b> Fraunhofer ISI	<b>Transformative governance</b> Demos Helsinki	<b>Nature-based street interventions</b> UCD	<b>Modelling &amp; AI</b> BSC & CERTH	<b>Mobility &amp; innovation management</b> Factual	<b>Circularity, lifecycle &amp; carbon assessment</b> DEKRA

<b>Gothenburg</b>	<b>Heidelberg</b>	<b>Tampere</b>	<b>Utrecht</b>		
<b>Lyon</b>	<b>Budapest</b>	<b>Warsaw</b>	<b>Zagreb</b>	<b>Bologna</b>	<b>Cascade Cities</b>

*Twinning*

# REALLOCATE INTERVENTIONS

## Public space inclusive & circular design

[UCD]



**Nature-based street interventions**  
Trees, recreational areas and parks will be protected in the redesign process. New nature-based street interventions can be tested, concerning the effect (incl. maintenance) of increased green patches, bioswales, green walls, planters, systems of rainwater recycling in view of increasing outdoor comfort for pedestrians & cyclists.

[DEKRA]



**Circularity, lifecycle and carbon footprint assessment**  
Recommendations will be provided on: design and material choice based on a life cycle analysis; circularity potential based on natural resources used, recycling, dismantling, etc.; climate resilience & adaptation; reducing emissions at the site, citizen wellbeing.

[DEMOS]



**Regenerative infrastructures**  
These have a net-positive impact on climate and biodiversity (environment), and community wellbeing (society). This includes analysing the impact of pilots on all users as well as climate resilience & adaptation, and providing recommendations for simultaneously improving impacts on environment and society.

## Digital tools & new mobility services



### Digital tools

- **Match-making digital tool:** Help cluster and translate the data collected (in WP5 - T5.2) into strategic recommendations for the SSMLs.
- **Targeted recommendations to the SSMLs,** in line with their Roadmaps and deployment plans
- **Focus on road safety, air and noise pollution, space allocation and active mobility data:** data from the dynamic dashboard (T5.2)



### New mobility services

- **Cities strategic long term decisions and actions:** Possible pathways based on the mapping of pilots and their progress assessment (based on the data collected in WP5)
- **Set of tailored recommendations,** On new zero-emission, shared, active and human-centred new mobility services

## Mobility Planning for climate neutrality

[CEREMA, FRAUNHOFER, ICLEI, Eurocities, ARUP, UCD]



### Sustainable Urban Mobility Plans

- Assessment of constraints and problems cities face regarding SUMP
- Apply a backcasting approach for SUMP
- 2 workshops with Cities during REALLOCATE Meetings: How can SUMPs achieve Paris target?

[ECF]



### Cycling Policy

Assessment of cycling policies

- Assessment of policies to achieve radical modal shift from private car use to active mobility;
- Assessment of policies to increase use of cargo bicycles and electric light vehicles

[IFP]



### Pedestrian and Inclusive Design

- Assessment of strategies to stimulate active modes
- Assess effectiveness of strategies to reduce the space occupied by moving and parked private vehicles
- Assess optimal infrastructure for active modes

## Safe System and Vision Zero for safety and security



**Vision Zero: a paradigm shift for road safety**

- Raising awareness on Vision Zero and the relation between local mobility policies & at the city scale to initiate the Safe System approach
- Increasing the benefits of solutions by integrated them within a larger safety plan (beyond the traditional approach, to prevent fatalities and serious injuries)
- Vision zero requires appropriate governance, efficient and relevant use of data, speed management, setting objectives and targets and report on progress

Component	1	2	3	4	5	6
1. Road Safety						
2. Urban Design						
3. Traffic Management						
4. Public Transport						
5. Active Mobility						
6. Safety Culture						

**Safe system: a comprehensive approach to assess and improve road safety**

- Provide support to cities to use data and insights to complete the Safe System table
- Defining the implementation of 5 key components and 6 road-safety pillars



**Broaden the scope from a safe SSML to a safe city**

- Provide Expertise for safety auditing In Link with WP5 - evaluation of safety
- Stimulate cities to integrate safety at a scale larger than SSML by moving towards safety policies at the city scale in link with mobility policy and planning approach

## User-centric mobility

[UCD]



### Citizen empowerment

Crowdsourced web-maps for VRU's safety perception, game-based approaches for participatory planning, geotagged walking interviews, focus groups, online surveys, ArcGIS StoryMaps.

[Nudgd, IFP, ECF]



### Behaviour design

Development of strategies to nudge citizens' behaviours and mobility choices. Techniques such as physical signs, digital nudging messages, and immediate feedback are used to encourage behavioural change towards safer and more sustainable mobility.

[Cerema, Nudgd]



### Data-driven, Context-specific Interventions

Leveraging detailed needs assessments and data to inform intervention strategies. Digital toolset deployed on the REALLOCATE Dashboard ensures real-time, data-informed decision-making.

## Road space modelling with AI and 3D space design

[BSC, CETH]



### Modelling and artificial intelligence

- Development of **AI/generative algorithms** from collected data in SSMLs and other multi-source data; visualisation and correlation in Digital Twins for an overview of **actual street users interactions** and the **relationship** of the environment.
- **Street profiles and traffic calming solutions** will be generated to model their potential impacts. **2D & 3D simulations** of interventions shown in AR/VR before implementation.

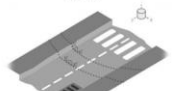
[ARUP, CEREMA]



### Urban design and traffic calming

- Re-design of roads and public spaces reshaped in design-specific software, with a focus on **reallocating and creating inviting, inclusive green streets and public spaces**.
- Integrated and customizable solutions with explanations shown in **2D & 3D Street Design Guidelines** informed by integrated traffic and infrastructure data & activity patterns.

[IFP]



### Pedestrians and inclusive design

- **Macroscale** overview of data in SSML will be supplemented by **microscale** data, e.g. surface scanning (with the Sidewalk LIDAR scanner, particularly relevant for pedestrians, disabled but also cyclists/e-scooters to prevent falls and self-injuries).

## Transport economics – New Governance & Business models

[FRAUNHOFER, Demos]



It will provide horizontal support to design alternative and feasible transition pathways for the 10 pilot cities.

**Transport economics:** Impacts of transition pathways for urban finances, stakeholders, people / society and the environment

**Transformative Governance:** How can transitions and the necessary change in public and private institutions be managed and fostered?

**Issues for consideration:**

- Economic and organisational feasibility
- Acceptability by public institutions, businesses and people,
- Alignment with local, national and global sustainability strategies and goals

[Fraunhofer]



### Transport economics

Ex ante assessment of a larger roll-out of the pilot cases in each city

- Feasibility, acceptability, relevance, efficiency;
- Deep interviews with stakeholders and administrations;
- CBA: implementation costs vs. monetarisation and estimates of CO2, safety and other impacts

[Demos]



### Transformative governance

Suggest governance and institutional structures to unfold transition pathways

- Analyze best practice governance structures in Europe and globally.
- Literature review on institutional and change management and new business and governance models
- Two deep dive interviews per pilot city to fully understand cultural and institutional backgrounds.

[Fraunhofer]



### Recommendations to pilot cities

Taylor-made roadmaps for reaching climate & safety targets

- Combine appropriate and economically feasible scenarios from the pilots with locally acceptable business and governance models.
- Validate the recommendations in pilot city workshop
- Brief reports individually for each pilot city.

# ZAGREB – PILOT PROJECT

## Zagreb | Pilot 1: Central traffic corridor holistic solutions

**Description:** The pilot will focus on a dense urban area with high volumes of VRUs (pedestrians, cyclists, children, elderly, people with disabilities) as well as high traffic volumes. The area is adjacent to the main pedestrian zone in Zagreb's city centre where several intersections on a main traffic corridor are highly unsafe.

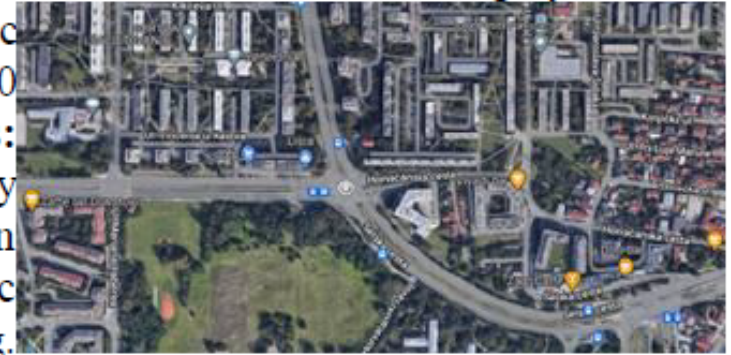
**Pilot Aims:** The pilot will test safety and design solutions on the traffic corridor and how the conflict between different users is managed (700 cameras located around the city for vehicle counting).

**Actions:** Investigate peak hours using cameras and radars to automatically acknowledge priority to different street users. Use *smart traffic lights* in signalised intersections and mobility solutions to prioritise public transport (tram or bus), and active road users (pedestrians, cyclists - e.g. automated detection and defined low waiting times). Implement *urban redesign solutions* (sidewalk design, new bike lanes, intersection redesign & traffic-calming, raised intersections/crossings for better accessibility for VRUs, to result in liveable, safer, climate-friendly spaces).

**Location:** Unsafe intersection (#14) of Selska – Horvaćanska Street.

**Safety relevance:** Increase safety for active road users, by inviting modal shift through prioritisation.

**Climate relevance:** Prioritising sustainable transport modes, reducing congestion and emissions.



**KPIs:** SUMI #5, #10, #13, #14, #18; **REALLOCATE KPIs:** #1, #2, #3, #4, #5, #6, #7, #10, #11

**Challenges:** TC2; TEC3; TEC4; UPC5; URC10

**Local partners:** Zagreb, SinBic, FTTS

**Links with Climate Contract:** Drastically improve PT, reduce car traffic, by 2035 rely on battery & hydrogen vehicles following the EU's Clean Vehicle Directive and RED III, increase active modes travel.

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# THANK YOU FOR YOUR ATTENTION

Assist. Prof. Luka Novacko  
Head of Department for Road Transport

Faculty of Transport and Traffic Sciences, University of  
Zagreb

E-mail: [luka.novacko@fpz.unizg.hr](mailto:luka.novacko@fpz.unizg.hr)

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