

Pilot Action: ZILINA

Improving Traffic Safety through Data

How Žilina is using Open Data and real-time traffic monitoring to create safer streets and support smarter urban planning

📍 **Location:** Žilina, Slovakia

🎯 **Focus:** Road safety, pedestrian protection & smart urban mobility

⚙️ **Data:** Traffic flows, vehicle speeds, vehicle categories, participatory safety maps, microzoning data

🔧 **Tools:** IoT traffic sensors, Urban Living Lab, analytical dashboards, Traffic Safety Index, Open Data platforms

👥 **Stakeholders:** City of Žilina, University of Žilina, Municipal Police, public transport company, local businesses, researchers, students and citizens

Pilot Action: Žilina

*Improving Traffic Safety
through Data*

Interreg
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EnCLOD

CONTEXT

As a major regional transport hub, **Žilina faces increasing challenges related to road safety**, particularly for pedestrians and other vulnerable road users. Before the project, traffic management relied on fragmented datasets and reactive interventions, making it difficult to identify high-risk locations and plan preventive safety measures.

The lack of integrated and continuously updated traffic data limited evidence-based decision-making and **reduced the city's ability to proactively address traffic safety concerns**.

WHAT WAS IMPLEMENTED

To address this challenge, the City of Žilina and the University of Žilina expanded an **Urban Living Lab dedicated to traffic safety and smart mobility**.

The pilot deployed **42 new traffic sensors and integrated them with existing monitoring infrastructure, creating a network of more than 90 traffic sensors across the city**. These sensors continuously collect data on vehicle counts, speed and traffic patterns.

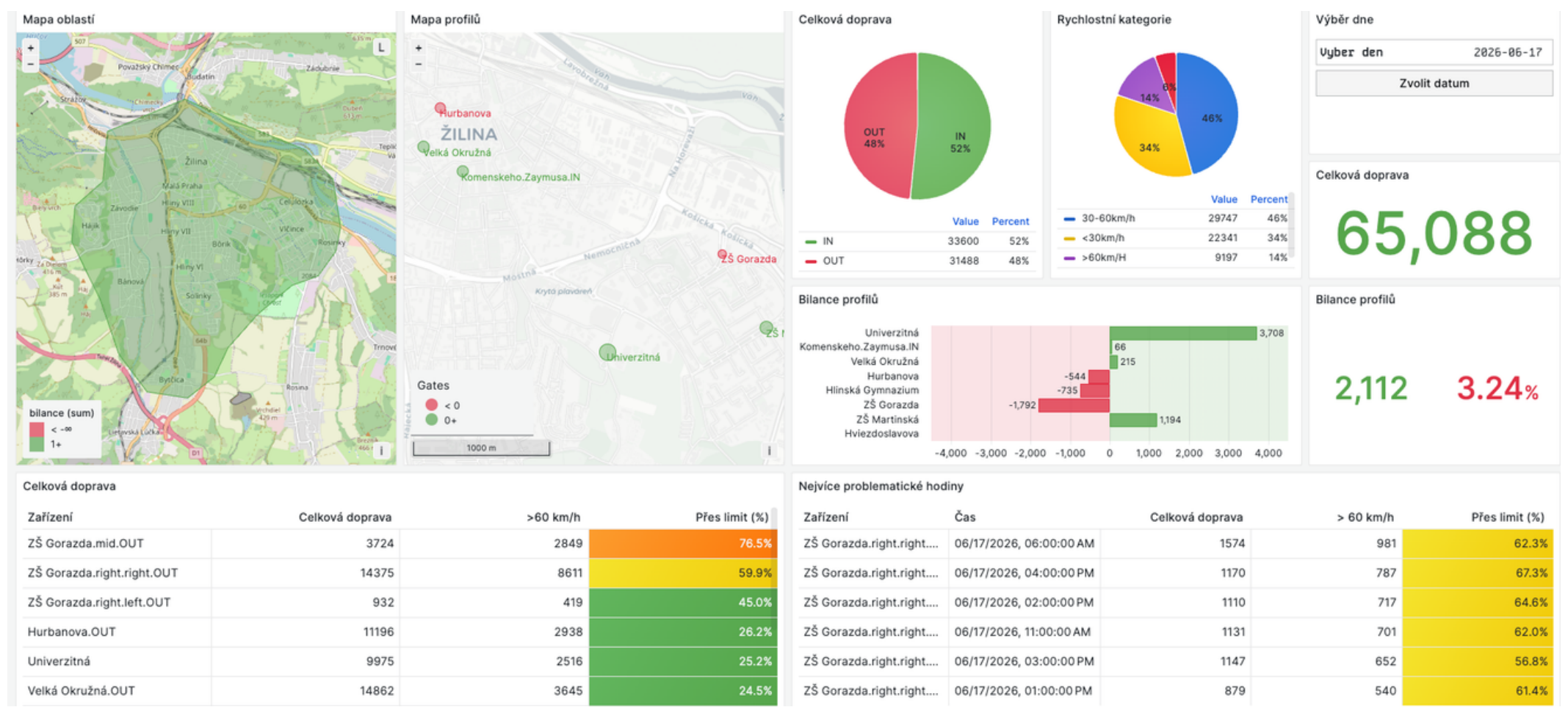
The project also introduced a territorial micro zoning system dividing the city into **61 transport zones and developed the foundations of the Traffic Safety Preventist Tool and the Traffic Safety Index**, enabling the city to identify dangerous locations and prioritise safety investments based on objective evidence.



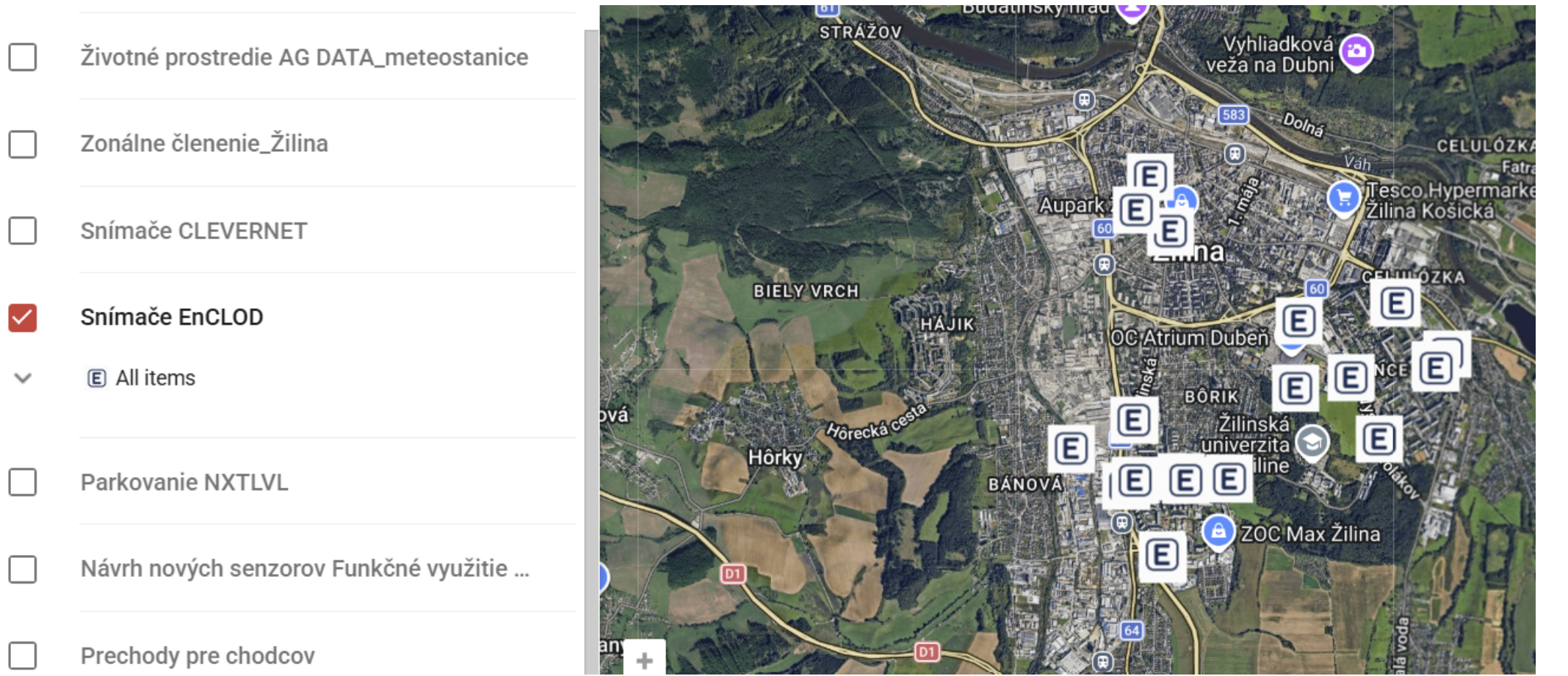
Photo credit: UNIZA

MAIN RESULT

- **42 new traffic magnetometers installed**
- **More than 90 traffic sensors integrated** into a city-wide monitoring network
- **61 transport microzones created** to support urban planning and Digital Twin development
- **Near real-time traffic data published as Open Data**
- **Development of the Traffic Safety Preventist Tool prototype**
- **Traffic Safety Index created** to assess risk levels across the city
- **6 innovative mobility and safety solutions developed** during the Žilina Hackathon



Traffic Safety Index dashboard developed within the Žilina Pilot Action. The platform visualises traffic data collected through the Urban Living Lab and supports the identification of high-risk areas, helping local authorities make evidence-based decisions to improve road safety. Available [here](#).



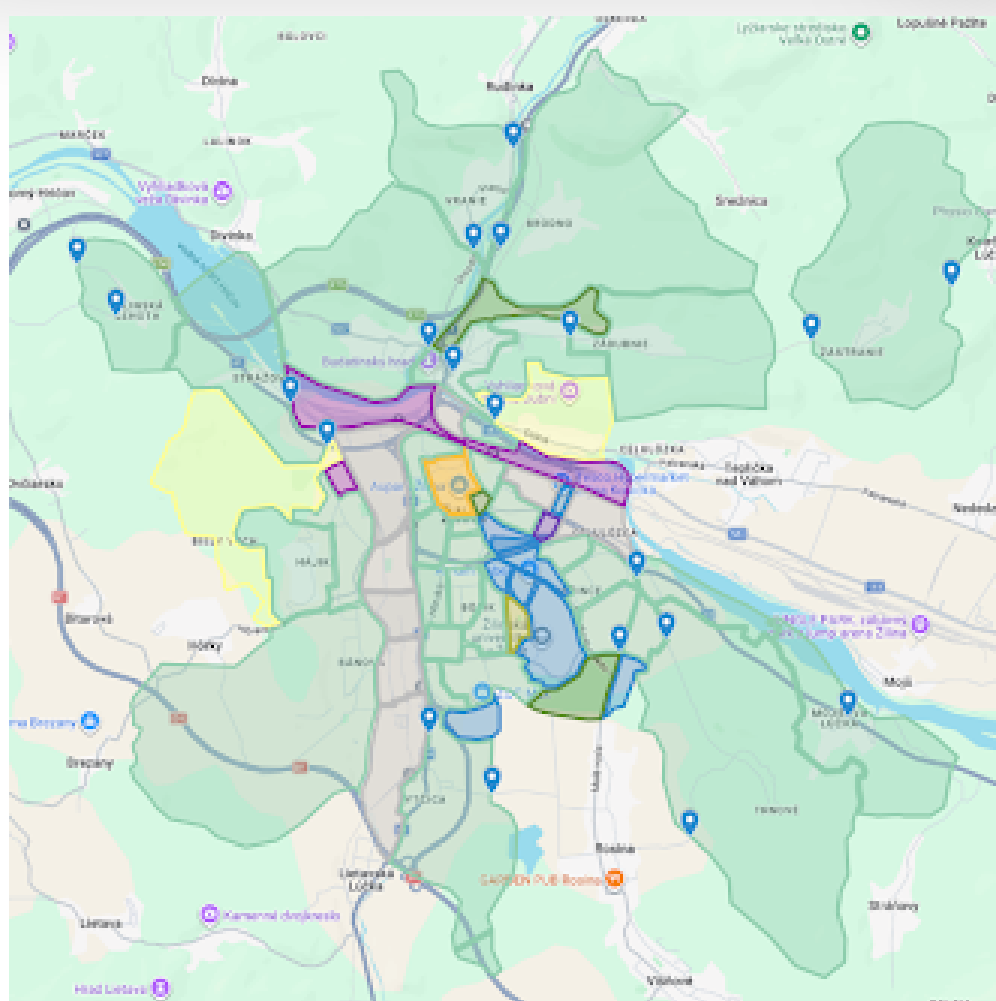
Interactive map of the Žilina Urban Living Lab, displaying EnCLOD sensors used for traffic safety analysis and urban planning. Available [here](#).

IMPACT ON LOCAL GOVERNMENT AND THE CITY

The Pilot Action strengthened local governance by providing reliable traffic data for evidence-based decision-making. It enabled the city to proactively identify high-risk locations, prioritise safety investments and improve urban planning, while laying the foundations for Žilina's future Digital Twin.

IMPACT ON CITIZENS/STAKEHOLDERS

Citizens benefit from greater access to traffic and mobility information through the Smart Žilina portal. The project also enabled students, researchers and local innovators to use Open Data to develop practical solutions for urban challenges, contributing to safer and more efficient mobility services.



Proposed IoT Sensor Expansion Roadmap and Territorial Microzoning for the City of Žilina

A screenshot of a web application titled "Vytvořit nový přechod" (Create new crossing). The interface is in Czech and guides the user through creating a new crosswalk passport and its first inspection record. It includes fields for "Aktuální město / trasa" (Current city / route) set to "Žilina", "Inspected At" (22.04.2026 08:42), "Photos" (Take Photo, Upload from Gallery), "GPS" (Select on map...), "Město" (Žilina), "Street" (E.g., Masarykova 123), "Specific Name (optional)" (E.g., North, near the school), and "Safety Class (1-4)" (1, 2, 3, 4). A "Create and Save Record" button is at the bottom.

A web tool for mapping and assessing pedestrian crossings to create an open dataset. Available [here](#).

FUTURE GOALS

- **Expand the Urban Living Lab** and integrate additional traffic and environmental sensors across the city.
- **Finalise and operationalise the Traffic Safety Preventist Tool** to support safety investment planning.
- **Consolidate all mobility and traffic datasets within a single municipal platform.**
- **Advance the development of a city-wide Digital Twin** for data-driven urban planning.
- **Strengthen cooperation with other municipalities and share the methodology across Slovakia.**
- **Continue supporting community-driven innovation** through hackathons and Open Data initiatives.

ABOUT THE PROJECT

The project EnCLOD aims at strengthening the governance capacity of 5 local public authorities in Central Europe by promoting the use of Open Data (OD) and the Internet of Things (IoT) sensor networks. This initiative strengthens multi-level governance, promotes civil society involvement, and fosters public-private collaboration. Within the five pilot areas - Vicenza (Italy), Olomouc (Czech Republic), Debrecen (Hungary), Zilina (Slovakia), and Nova Gorica (Slovenia) - a specific challenge related to mobility/transport, environment, or climate change policy area is addressed through the development of 5 local Action Plans for the effective usage of Open Data and IoT opportunities for territorial governance and city-region planning. Furthermore, project activities will significantly increase awareness and knowledge of public authorities on OD and IoT potentialities for territorial governance, through case study collection and capacity building activities. Citizens' engagement will be enhanced through the organisation of events like "hackathons" and raising awareness activities.



PARTNERS INVOLVED IN THE PILOT ACTION OF ŽILINA



UNIVERSITY
OF ŽILINA



Mesto Žilina
Mesto s tvárou



CITIQ
Intelligent technologies
for urban mobility

OTHER PROJECT PARTNERS



Provincia di Vicenza



Palacký University
Olomouc



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A
V



FA
UNIVERSITY OF LJUBLJANA
Faculty of Architecture



MESTNA OBČINA
NOVA GORICA

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