OUTPUT FACTSHEET

Project index number	CE0200649	**Acronym**	EnCLOD			
Output type *("x" to be included)*	**Strategy/ action plan**		**Pilot action**	X	**Solution**	
Output number (O.xx)	O 2.1	**Output title**	Provice of Vicenza Pilot Action on Open Data to improve territorial governance			
If the output target is > 1 in the AF, please specify the output(s) described in the factsheet	1					
Output delivery date	30/04/2026					
Project website	https://www.interreg-central.eu/projects/enclod/					

Summary description of the output

Please present the output by addressing the following topics.

Territorial challenges and needs in the regions specifically addressed by the output
(max. 700 characters)

The Province of Vicenza manages over 1,000 km of roads, including mountain routes where winter weather can rapidly create hazardous icy conditions. Decisions on when and where to spread salt have traditionally relied on broad weather forecasts and operators' experience, making it difficult to optimise interventions, verify contractors' performance, and balance road safety with sustainability goals. The pilot addresses these challenges by introducing 15 environmental sensors that enable the province to identify priority areas for road maintenance, publishing the information as open data and enabling public authorities and other users to create adaptive solutions for winter road maintenance.

Main aim(s) of the output and how it contributes to tackle the identified challenge(s)
(max. 500 characters)

The Pilot Action aims to provide the Province of Vicenza with a data-driven tool to assess winter road conditions and estimate when salting is necessary. By combining local sensor data with existing environmental information, it supports safer and more efficient road maintenance, transparent verification of outsourced services, targeted salt use, reduced costs, and policy priorities related to road safety, environmental protection, digitalisation and Open Data.

Technical description of the output (e.g. scope, main features, innovative elements etc.)
(max. 1500 characters)

The Pilot Action was designed to improve winter maintenance on Vicenza's mountain roads by providing reliable, location-specific evidence on the conditions that can lead to ice formation. Its purpose is to support safer, more efficient and transparent decisions on road salting and to provide a quantitative benchmark for comparing the estimated need for interventions with the services performed by subcontractors.
The pilot combines four new meteorological stations, existing environmental data and an algorithm developed by Iuav University of Venice. The stations include 15 sensors measuring air and road-surface temperature, humidity, rainfall, snowfall and road conditions, together with webcams. Data are transmitted every 15 minutes, displayed through an online platform and published as Open Data.
The innovative element is the integration of newly collected and existing institutional data into a shared decision-support framework. Sensor locations were selected through a multidisciplinary analysis of accident records, road characteristics, altitude, shading, climate conditions, existing monitoring coverage and connectivity. The new sensors filled local information gaps that broader weather networks could not cover, supplying continuous microclimatic data directly from critical road sections. This enabled the development and calibration of the algorithm, supported the assessment of salting requirements and created a basis for improving procurement, contractor verification, environmental performance and future winter road planning.

Involvement of target groups during output development and/or implementation
(max. 700 characters)

The involvement of local stakeholders focused on two groups: first, the public authorities responsible for road and data management, in order to build the basis of an "open data ecosystem"; and second, SMEs from the IT sector and the general public, with the aim of raising awareness of open data.
The first group included: the Regional Environmental Agency (ARPAV), which collects relevant data on climate and the environment; the road management company Vi.abilità S.r.l., which manages more than 1,000 kilometres of roads and is interested in data collection. The company was actively involved in all key steps of the Pilot Action implementation and in the Open Data training sessions.
The second group was involved through public awareness-raising events, including the Hackathon, whose organisation was supported by Vicenza's Digital Innovation Hub. This private company, part of the local trade association, promotes the digitalisation of SMEs and was therefore able to engage several professionals and entrepreneurs from the IoT sector.

Cooperation dimension of the output, i.e. joint development within the partnership and, if applicable, joint implementation (see output indicator definitions in chapter I.3.3 and Annex 2 of the programme manual)
(max. 700 characters)

The Province of Vicenza Pilot Action was designed and implemented on the basis of the common methodology developed within the project partnership, to test the use of Open Data for territorial governance. This includes: sensor network design and deployment, Open Data publication, data analysis, development of IT tools, training and hackathons. All these steps were implemented in Vicenza, adapting them at the local contexts, producing interesting cooperation results.
In doing this, Province of Vicenza cooperated directly on the technical level with Iuav University of Venice (IT) and partners CityOne and CityQ (CZ), for their expertise and technological support in data management and processing. Other contributions were received from University of Ljubljana (SI), mainly for the design and overall planning of the Pilot. Finally, inputs and transnational peer learning exchanges were ensured among all project Pilot Actions, as part of project activities.

Results - expected change and lasting effects in the territories generated specifically by the output, its uptake by relevant organisations and benefits for target groups
(max. 1000 characters)

The Pilot Action is expected to shift winter road maintenance in the Province of Vicenza from decisions based mainly on general forecasts and operators' experience towards a more systematic, evidence-based approach. By combining sensor-generated data with existing Open Data, the Province and Vi.abilità srl will be able to improve planning, verify subcontracted services and progressively optimise salt-spreading operations. In practical terms, the model will support ex-post controls by assessing whether salt-spreading interventions were timely and proportionate to actual road and weather conditions, and by identifying insufficient, excessive or otherwise inadequate operations, enabling the progressive optimisation of interventions over time.The Province has already joined the Open Data Veneto ecosystem, published its first datasets and approved a Decree supporting the EnCLOD Local Action Plan, while Vi.abilità is preparing a control room to integrate traffic, weather and infrastructure data. The lasting change is a stronger institutional capacity to use territorial data in routine governance. Local and regional authorities will benefit from safer, more transparent and environmentally responsible maintenance, while data-management and technology companies may gain new opportunities to provide interoperable platforms, monitoring services and decision-support tools.

Ownership and durability of the output after the project end, considering financial and institutional support including, if applicable, maintenance
(max. 700 characters)

The Province of Vicenza activated an external service l to install and operate the meteorological stations and provide the collected data through a Data-as-a-Service model. The model developed by IUAV integrates these new measurements with existing environmental Open Data provided by ARPAV and other available data sources.
In terms of ownership, the model and its methodology will remain available to the Province of Vicenza and Vi.abilità, and to IUAV for further research activities. Vicenza Province and Vi.abilità intend to continue the Data-as-a-Service arrangement using their own resources, while other used data will continue to be available trough other operators. This will allow to further test and refine the model, for progressively improving its reliability and operational application in winter road maintenance. In parallel, new data will be produced and made available in open format to any interested user.

Transferability of the output to other territories, sectors or target groups and planned measures for supporting such transfer
(max. 700 characters)

The methodology tested in Vicenza provides a transferable model for other provinces, mountain areas and public authorities seeking to use Open Data and sensor networks for road management, environmental monitoring or other territorial services. Transfer is supported through local events involving municipalities and public-sector stakeholders, encouraging awareness and replication. At European level, The common methodology used to develop the project Pilot Actions is publicly available (Deliverable D.1.3.1 - preliminary version, Deliverable D.3.3.1 - Final revised verison, available at the end of the project) and shall promote knowledge sharing and broader uptake of the EnCLOD approach beyond project countries.

Related final deliverable(s) (Number(s) and title(s) to be included)	
Output web link (if applicable)	https://www.interreg-central.eu/projects/enclod/?tab=media
GPS coordinates (if applicable)	Province of Vicenza: 45.789, 11.417