

FinEst Centre
for Smart Cities

SMART CITY CHALLENGE 2025

Solution idea for the city challenges

Max 3 pages
send to smartcity@taltech.ee by Nov 30, 2025

Solution Idea Title (max 5 words, no acronyms) - Collaborative Climate Resilience Model

Planned pilot project duration – 24 months

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1. Which urban challenge or problem are you planning to provide a solution to?

Warsaw aims to strengthen climate resilience in the Nowe Centrum Warszawy (NCW) area, where climate-related vulnerabilities such as heat stress, stormwater risk, noise exposure and reduced environmental comfort are influenced by both public and private activities.

Many risks emerge on or around privately owned buildings, retail areas, logistics routes and construction sites. Although cooperation exists, it is currently fragmented and lacks a structured governance model, shared priorities and stable tools for coordination.

The challenge is to develop a scalable, long-term model of collaboration between the city and private stakeholders to jointly identify risks, plan interventions and implement climate-resilience actions in a complex, mixed-ownership district.

- Which city challenge/-s proposed by the cities / counties you are targeting? NBI! Please choose one from the list of urban challenges chosen for the Smart City Challenge 2025, i.e. Round 5.

Smart City Challenge Round 5: Climate adaptation & resilience - multi-stakeholder cooperation for resilient districts.

2. The solution you are proposing

We propose the **NCW Collaborative Climate Resilience Model** - a governance-led framework that helps cities and private stakeholders create shared climate-resilience strategies and implement coordinated interventions.

The model integrates three components:

1. Governance & cooperation framework

A structured model defining responsibilities, incentives, communication channels and decision-making processes between the city, developers, property owners and businesses.

This is the core of the solution.

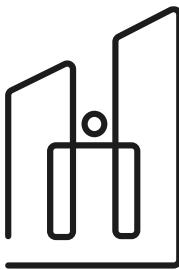
2. Lightweight digital decision-support environment

A flexible, modular tool integrating selected data layers (e.g., heat exposure, runoff, noise, shading, green coverage, mobility flows).

It is not a full digital twin, but a practical support tool that:

- visualises risks,
- helps prioritise locations,





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- facilitates transparent discussions with private partners,
- stays realistic in scope for a 24-month project.

3. **Co-creation and micro-pilot toolkit**

A set of small, low-risk, co-designed interventions (e.g., shading, greening, permeability improvements, tactical cooling zones, noise mitigation, micro-logistics adjustments), paired with monitoring guidelines.

This combination creates a governance-first, data-supported, actionable model that cities can adopt and scale.

How does it solve the city challenge you target?

- Establishes a **stable, replicable partnership structure** between public and private actors.
- Ensures **shared understanding of climate vulnerabilities** through simple, integrated data tools.
- Allows private stakeholders to become **co-authors and co-investors** of adaptation measures.
- Supports **rapid piloting** of small interventions that build capacity and trust.
- Creates a model applicable to other mixed-ownership districts in Europe.

3. Innovation and piloting of your pilot solution.

What are the best solutions available now? How will your solution be better? What is the innovation in it?

Current approaches often involve:

- single-building adaptation efforts,
- general municipal adaptation plans without private-sector implementation tools,
- static environmental maps,
- overly heavy digital platforms requiring high investment.

Our innovation is the combination of:

- **governance**,
- **light digital tools**,
- **co-created micro-pilots**

...into a model that is realistic for cities to adopt within a short timeframe. This ensures practical value, feasibility and scalability.

What do the cities need for piloting the proposed solution? How the piloting could work?

Cities will need:

- Access to GIS and environmental datasets
- Voluntary data sharing from private partners
- Joint working groups (city + private actors)
- Locations for testing micro-interventions
- Internal coordination across departments
- Communication and engagement pathways

Pilot structure (24 months):

Months 1-6: Diagnosis & governance co-design

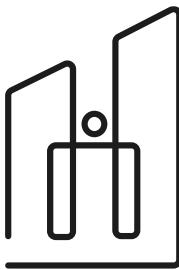
- Joint workshops
- Mapping of risks and operational pressures
- Agreement on collaboration model

Months 4-12: Development of lightweight digital environment

- Selection of key data layers
- Risk visualisation and scenario testing
- User-friendly dashboards

Months 10-20: Pilot interventions





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- Tactical greening, shading, cooling
- Permeability or noise-mitigation elements
- Micro-logistics or mobility adjustments
- Monitoring through simple indicators

Months 18-24: Evaluation & replication

- Final NCW Resilience Collaboration Model
- Replication guidelines for other cities/districts

Please provide short information about the capabilities of the research and development proposed team.

Karolina Orcholska - sustainable urban mobility and urban policy consultant with long-standing experience working with local governments in Poland and across Europe.

Worked both **for municipalities** and then in a **research company** - analytical, evaluation and evidence-based projects. Experienced in stakeholder engagement, governance models, climate-resilient mobility planning and integrated urban development within URBACT, Interreg and other european projects.

Skills needed from TalTech

- environmental analytics and climate-risk modelling
- data integration and lightweight platform development
- governance and smart-city engagement methods
- evaluation methodology and scenario analysis

TalTech researchers would co-lead the analytical and digital components and support the evaluation framework.

4. Expected impact of your pilot solution.

Potential impact for city environments, sustainability and citizens

- More effective and coordinated climate-resilience actions
- Stronger governance and continuity in public–private cooperation
- Increased green and permeable surfaces
- Improved thermal comfort and microclimate
- Reduced noise exposure and better street-level environment
- More attractive, healthier and safer public spaces
- Scalable model for other districts in Warsaw and beyond

Disclaimer: by submitting this form you will give the FinEst Centre for Smart Cities the right to share this idea with cities and other researchers, companies through FinEst Centre homepage. If this idea is selected, the FinEst Centre for Smart Cities has the right to implement this idea with offering you an active role in conducting the pilot. If this pilot is selected then the financing is an investment by the FinEst Centre for Smart Cities.

