

FinEst Centre
for Smart Cities

SMART CITY CHALLENGE 2025

City Challenge

Max 3 pages

send to smartcity@taltech.ee by Sept 30, 2025

Challenge Title – Multifunctional Resilience Centers for Urban Safety

City/county and country - Saaremaa Municipality, Estonia

Main contact from your city/county – name, organization, job title, e-mail, phone

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1. What is the future urban challenge that would need a solution to?

- Please describe the challenge of your city / county neighboring a city?

Saaremaa is increasingly facing challenges related to natural disasters - such as storms, severe winter conditions, flooding - as well as power outages, cyberattacks, and occasional social unrest. These events can disrupt essential systems, including electricity, heating, and communication, thereby disrupting the daily life and essential services for residents as well as visitors.

- Which category your challenge is primarily in: safe city, happy city, and climate resilient city?

Safe city (while also helping with climate resilience)

- Why is it important for your city to solve it? How big priority it is for you and why?

The paramount priority for Saaremaa is the safety of its inhabitants. Given the insular nature, the island cannot always rely on prompt assistance from the mainland. Additionally, Saaremaa is vulnerable to the impacts of climate change and energy-related issues. Consequently, there is a pressing need to establish local emergency shelters and community centers powered by renewable energy sources. These facilities will provide a sense of security and support, particularly during adverse conditions.



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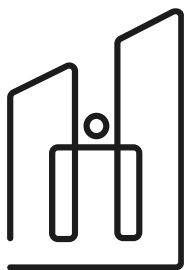


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- Is this a unique challenge/problem of your city, why or is this by your knowledge a challenge/problem that many cities have – which kind of other cities?

While the unique characteristics of island life present specific challenges, many small and medium-sized towns across Europe face similar issues, such as geographical dispersion, limited backup systems, and climate-related risks. The proposed solution has the potential to be replicated in other regions confronting analogous challenges.

2. Innovation.

- How have you solved that issue so far? Why aren't the present solutions good enough? Are there legal obstacles, which ones?

So far, Saaremaa has mainly relied on large, centralized emergency shelters and the main power grid to provide safety during crises. These shelters are typically mandated by regulations, such as the requirement for diesel generator capability in Estonia, but they lack mobility, modularity, and renewable energy or battery solutions. If these central systems fail—due to storms, power outages, cyberattacks, or social unrest—there are few backup options available, leaving communities vulnerable.

While some legal frameworks and contingency plans exist for energy and safety, they are often fragmented and not well integrated. For example, Estonia is moving towards stricter shelter regulations for new buildings, requiring multi-use spaces that can withstand blasts and provide protection in emergencies. However, these rules mainly apply to larger new builds and do not address the need for decentralized, flexible solutions in smaller communities or existing buildings. The current legal requirement focuses on diesel generator capability, not on renewable or battery-based backup systems.

- What should be the main features, characteristics of the future solution to be potentially best for that challenge or problem?

Resilience Centers: Establish small, mobile, and flexible "Resilience Centers" within neighborhoods and community buildings.

Renewable Energy: These centers will generate their own power through solar panels and wind turbines, storing energy in batteries to ensure functionality even during main grid failures.

Shelter and Support: Each center will have the capacity to shelter 20–30 individuals (location-specific number) for up to three days, providing essential services such as light, warmth, safe accommodation, information, phone charging, and basic food and water.

Community Integration: In non-emergency situations, these centers will support community needs by charging electric vehicles and bicycles.

Smart Systems: Implement smart systems to monitor energy usage and maintain readiness for emergencies.

Scalability and Flexibility: The simplicity and flexibility of this concept allow for its adaptation and implementation in various locations.

3. Expected impact of your pilot solution.



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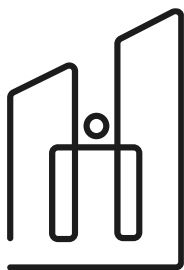


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- What is the expected impact to your city environment you expect to see if the challenge gets solved?

Firstly, the city will be better equipped to handle blackouts, natural disasters, and cyberattacks, thereby enhancing overall resilience. Additionally, the burden on emergency services will be alleviated, allowing for more efficient and effective responses. Furthermore, the adoption of renewable energy sources will contribute positively to environmental sustainability.

- What is the expected impact to your citizens you expect to see if the challenge gets solved?

Individuals will experience an increased sense of safety and confidence during emergencies, knowing that essential services and support are readily available. Moreover, access to clean energy and sustainable transportation options will be ensured throughout the year, promoting a more sustainable lifestyle. The community will also benefit from enhanced connectivity and engagement, fostering a stronger sense of unity and collaboration.

- What is the expected impact to your city governance you expect to see if the challenge gets solved?

From a governance perspective, the city will be better positioned to respond to emergencies with greater efficacy. Improved coordination and collaboration between the city administration, energy experts, and residents will be achieved, leading to more cohesive and effective governance. Additionally, the proposed solution can serve as a model for other towns facing similar challenges, demonstrating the potential for scalability and replication.

4. Piloting

- Why would you be interested to become a piloting partner of a proposed solution to the challenge you are describing here? Describe shortly your capability to participate.

Saaremaa possess experience in testing innovative solutions in the fields of energy and transportation, including the implementation of energy cooperatives and smart grids. We are well-positioned to provide suitable locations for piloting these new resilience centers, engage with local communities, and leverage funding from the European Union and national sources. Additionally, our participation in international networks enables us to disseminate our findings and facilitate the adoption of similar solutions by other regions.



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