

SMART CITY CHALLENGE 2025

City Challenge

Max 3 pages

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

Challenge Title: solar-powered public bicycle system

City/county and country: Chia, Cundinamarca, Colombia

Main contact from your city/county:

Juan Pablo Ramirez Otalvaro, Municipal mayor's office of Chia, Secretary of Mobility.

E-mail: yamid.gama@chia.gov.co.

Phone: +573102654076

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

Transform the current, outdated, traditional public bicycle system into a modern one, powered by smart, environmentally friendly systems. The municipality of Chia currently has a traditional-manual public system for free bicycle loans, which requires a budget investment through operators in charge of lending the vehicles. The challenge is located in the category of climate resilient city and seeks to transform the current model (manual) into an automatic and environmentally friendly one.

The achievement and implementation of this new system would significantly contribute to efforts aimed at reducing the carbon footprint and represent a significant step forward in adapting state actions to the heat waves currently common due to climate change. In addition, the system would be capable of being integrated with sustainable mobility and emergency resilience plans and projects planned both in the municipality of Chia and in the region.

The municipality of Chía is characterized by its residents' long history of bicycle use. The municipality also has approximately 25 km of bicycle infrastructure that allows citizens to travel within the municipality, discouraging the use of motor vehicles and thus contributing to air quality, health, and sustainable mobility. This challenge is a priority due to the high user demand currently registered by the traditional system. The system serves approximately 800 users per year. Although demand is higher, its capacity does not allow for broad user coverage. The annual budget invested in human resources amounts to approximately \$24,000 USD in operating costs.

This isn't a problem unique to the municipality of Chía. Automated and sustainable systems are common only in a few major cities and municipalities in Colombia.

2. Innovation.

Although there are no legal obstacles to solving the problem, the Chía Municipal government currently lacks the financial resources necessary to transform and modernize the public bicycle system. The current solutions implemented are based on humane management of the system. An automated, solar-powered system with modern bicycles and several loaner points distributed throughout the municipality is required.



FinEst Centre
for Smart Cities

A modern public bicycle system represents a step forward in digital inclusion for citizens by ensuring universal accessibility. The system could also be integrated and/or adapted to public transportation apps and collaborative economy schemes.

3. Expected impact of your pilot solution.

The expected impact on the municipality's surroundings will be a significant improvement in travel times for those who travel through or transit the city by motor vehicle. Citizens will benefit from increased opportunities for sustainable and environmentally friendly travel, with a direct impact on their health by encouraging physical exercise through the transformation, modernization, and expansion of the current system's coverage.

At the same time, the expected impact on governance will be an indirect solution in terms of budget, mobility, and road safety. With the implementation of this new system, a 300% increase in bicycle use is projected, which would represent approximately 2,400 citizens benefiting from the system and a reduction in operating costs of approximately 70%, which are currently covered by the municipal administration.

4. Piloting

The municipality of Chía, through the technical team of the Mobility Secretariat, will allocate all human, intellectual, and physical resources to address the challenge and its broader implications. It will also monitor the implemented solution, conducting relevant analyses and implementing activities to improve or sustain it.

Respectfully,



JUAN PABLO RAMIREZ OTALVARO

Municipal mayor's office of Chia, Secretary of Mobility



REPUBLIC OF ESTONIA
MINISTRY OF EDUCATION
AND RESEARCH



REPUBLIC OF ESTONIA
MINISTRY OF ECONOMIC AFFAIRS
AND COMMUNICATIONS

**FORUM
VIRIUM
HELSINKI**

**TAL
TECH**

A!
Aalto University