SuSMo

Sustainable Shared Mobility

Case study: Mobility Hub in Sofia

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CLEANTECH BULGARIA

eit Climate-KIC
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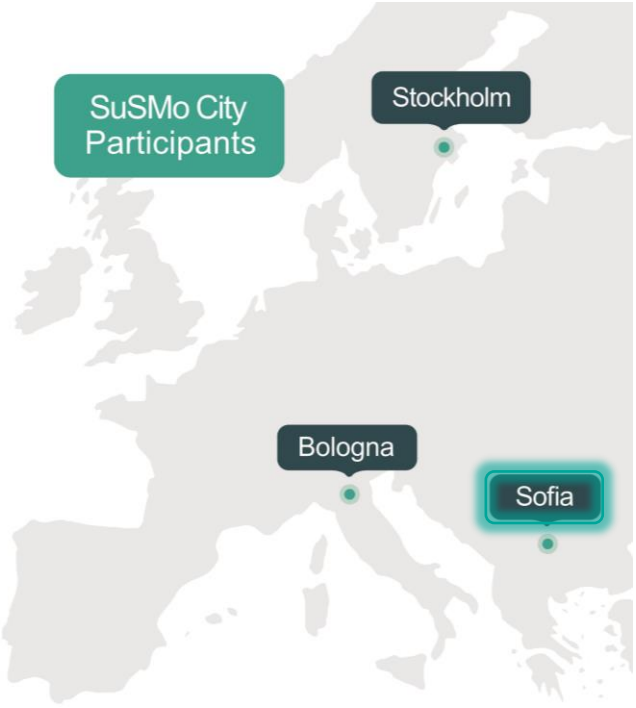
Sustainable shared mobility for Sofia

The Sustainable Shared Mobility (SuSMo) project aims to catalyse systemic change by instigating behaviour change, enabling connections and collaborations, and removing barriers through policy change. SuSMo brings together leading European cities with experts in the transport sector to provide decision-makers with tools and knowledge to maximise the benefits and mitigate the negative impacts of shared mobility modes. Funded by EIT Climate KIC, SuSMo was launched in 2019 and has worked with city representatives and private sector shared mobility providers to establish the key needs and priorities for the effective deployment of sustainable shared mobility.

The City of Sofia

Sofia, the capital of Bulgaria, is the most densely populated city in the country. In the past years, the city experienced a rapid population increase adding to the urban mobility challenges. The geography of the city, being positioned between mountains, sets limits on its expansion in terms of territory. This is one of the reasons the city struggles with excessive traffic, overloaded streets, limited space for pedestrians and the related health risks for the inhabitants.

As one of the SuSMo partner cities, Sofia has been involved since the project's start. Providing a wide geographical coverage and the Eastern-European perspective on shared mobility. This case study pertains the establishment of the first mobility hub in the city as a result of the active cooperation between public and private actors.



Challenges of Sofia and possible way out

The city of Sofia has one of the highest levels of air pollution in Europe, resulting in health risks for citizens. One reason for this is the high ownership and usage of private cars exceeding 1,5 times the average rate of car ownership in EU. On the other hand, Sofia is located at the skirts of Vitosha mountain, which attracts significant number of tourists in the weekends. Finally, the city was lagging with the deployment of shared mobility services, as per 2018 there were no such services available for the citizens.

The key to solving these challenges was the establishment of a public-private partnership. The partnership was the results of a series of EIT Climate-KIC funded projects, resulting in the first mobility hub in Sofia.

Sofia Urban Challenge

Preconditions

The idea originated back in 2017 when Cleantech Bulgaria developed the concept for Sofia Urban Challenge Phase I – an open innovation initiative targeted at innovators and promising start-ups with solutions to tackle the burning topic of air pollution in Sofia. The initiative was executed in close cooperation with Sofia Municipality during the first international conference dedicated to exchanging experiences for tackling the air pollution in urban environment 'SOFAIR' held in October 2017.

The competition itself was executed in an international environment attracting innovators and start-ups from all over Europe. The Bulgarian based start-up Eljoy bikes – a manufacturer of electric bikes – was pronounced the winner in a highly competitive run-down.

From winners to pilot testers

The partners in Sofia Urban Challenge Phase I – Sofia Green, a project of Sofia Municipality, Cleantech Bulgaria and EIT Climate-KIC, had the ambition to upgrade the open innovation initiative by laying the basis for testing the service in an urban environment and assessing its impact. As a logical continuation, the project was re-launched in 2018 in Phase II.

Cleantech Bulgaria, with the strong support of Sofia Municipality, conceptualized the establishment of the first bike sharing scheme in Sofia. It was decided to position the e-bikes at the skirts of Vitosha mountain, enabling access to the mountain by bike instead of car. Eljoy bikes partnered with E-mountain bike, to provide both city and mountain bikes.

The challenges before the launch

Given that the services were located at the outskirt of the city, the main challenge for setting up the service of the rent and return point was the lack of charging infrastructure. As these types of projects are expensive and time-consuming, the partners had to find a way to provide electric supply.

At the same time Spark, the first car-sharing scheme in Sofia, was experiencing a rapid expansion of service areas. Spark works in collaboration with the charging infrastructure developer Eldrive. Cleantech Bulgaria engaged all relevant stakeholders and acted as an intermediary in the process of negotiation, resulting in Eldrive building the charging infrastructure.

The mobility hub

Having the charging infrastructure ready for both Spark's shared e-cars and e-mountain bikes at the same location resulted in the establishment of the first mobility hub in Sofia. The hub is operational all year round for e-cars and during the summer for both e-cars and e-bikes.

E-bike service impact and exploitation

The GHG emissions of the e-bike sharing system for a season of operation are 284 kg CO2- eq., compared to 1098 kg if the 526 customers went by diesel car and 1175,6 kg if they all travelled by gasoline car. Taking the mean GHG emissions of the two types of cars, 853 kg (0,853 tons) of CO2-eq. have been saved thanks to the Sofia Urban Challenge pilot project. This is equal to 1,7 barrels of oil saved from being burnt or to over 4,3 months' worth of electricity supply to an average EU household.

The bikes experience steady growth of numbers of deployment (from 10 in 2018 to 20 in 2020). The business model is validated but due to the limited number of bikes in operation and high maintenance costs, the service is still relatively expensive for mass users

Results & lessons learned

The establishment of the mobility hub showcases how public-private partnerships can be successfully utilized for tackling complex challenges, and even overcoming major technical obstacles. The incorporation of diverse stakeholders' expertise and alignment of their visions towards mutual goals can only be beneficial for the citizens and the cities.

This is an excellent example of the impact the EIT KICs can have on the local communities, their potential to mobilize actors and contribute to the innovation deployment in cities.

This example showcases a project that impacts the private sector engagement and behavioural change perspectives in the deployment of shared mobility services.

Private sector engagement

The engagement of a large group of stakeholders from the private sector is crucial for the execution of these types of projects. On the one hand, private actors possess the innovation capacity to solve key city challenges. On the other, they also have the resources to invest in such kind of initiatives if they correspond to their business interest. If those two preconditions are thoughtfully utilized by municipalities, they can result in these types of impactful and transformative projects for the entire society.

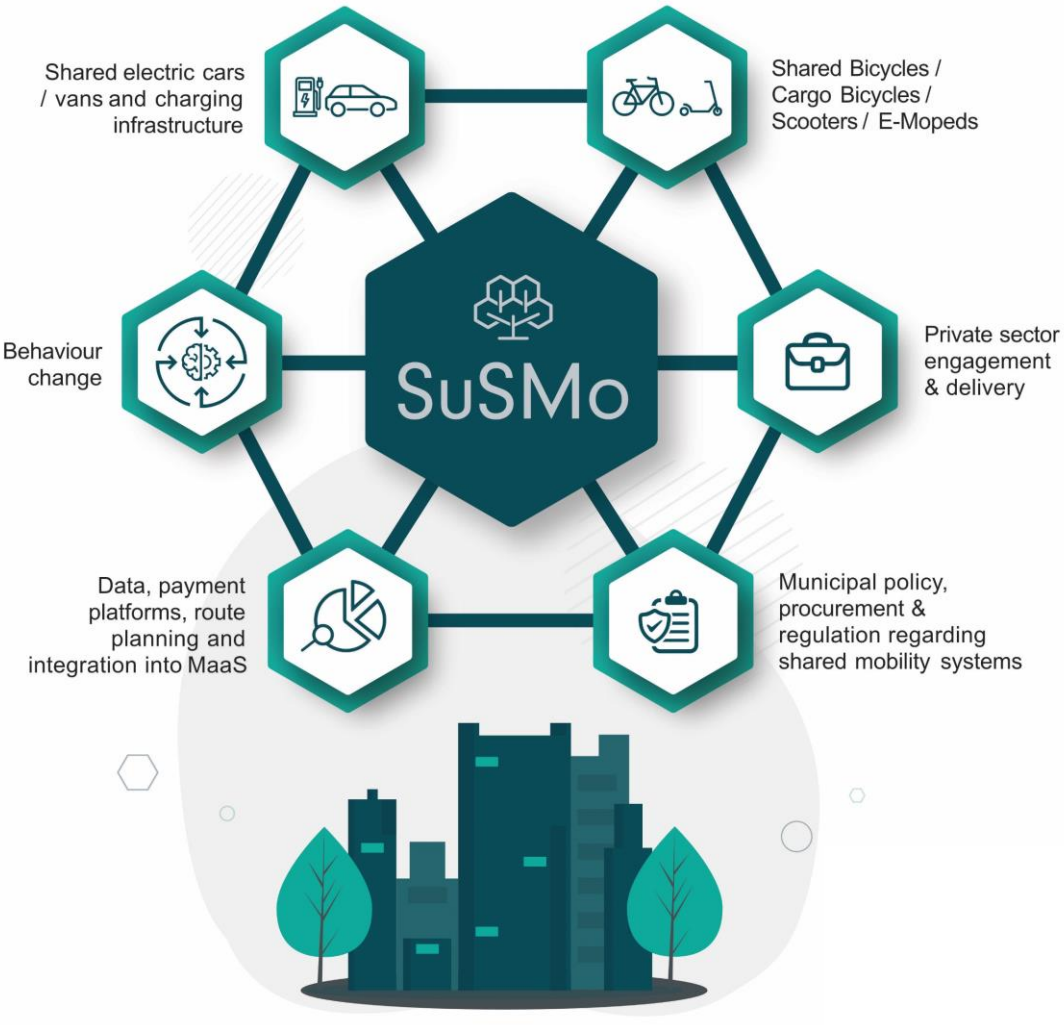
Behavioural change

The establishment of the mobility hub is already transforming the behaviour of citizens in Sofia. Spark continuously reports on excellent performance and steadily increase the number of shared e-cars in operation (reaching almost 1000 in the end of 2020). Having the mobility hub for both e-cars and e-bikes is an enabler for accessing the mountain in an environmentally friendly mode compared to the previous behaviors being tightly related to the use of privately owned cars.

SuSMo

How did SuSMo contribute to Sofia

The SuSMo project supports urban mobility professionals from Sofia Municipality to assess current transport needs and to co-create with other partner cities the tools for transforming current transport systems into low-carbon, user-friendly operations.



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