The Urban Lab of Europe!

CASE STUDY

REPORT

Integrated development in action!

PROJECT

CitiCap - Citizen's cap-and-trade co-created

Lahti, Finland

TOPIC

Urban mobility

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Lahti - CITICAP

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About CITICAP

This case study showcases how the city of Lahti (Finland) had a strong place-based approach for encouraging behavioural changes towards sustainable mobility options. Their UIA initiative, CitiCap, focused on how to enable the city's transition toward sustainable mobility by formulating the city's first Sustainable Urban Mobility Plan (SUMP) informed by two innovative elements: a personal carbon trading (PCT) pilot scheme and a bicycle highway based on co-designed and technology-driven elements. The project is a strong example of how to capitalise on multi-stakeholder partnerships to advance innovation and how to invest in high quality granular place-based data for evidence-based decision making. CitiCap has also strongly contributed to Lahti's title as the 2021 European Green Capital.

Fostering changes towards sustainable mobility (c) CITICAP

CitiCap was chosen as a case study because of its strong place-based approach which managed to combine emerging technologies, citizen engagement and urban mobility policies. With strong SMEs (MOPRIM, Good Sign Ltd, Infotripla Ltd, Mattersoft Ltd and Future dialog Ltd.) and regional universities (Lappeenranta University of Technology LUT and Lahti University of Applied Sciences LUAS) as partners, and not suppliers, it has shown how innovation takes place in the discovery process and early stages of co-creation. Due to strategic decisions taken in the early stages of the project, CitiCap managed to successfully test and evaluate in a participatory way a voluntary Personal Carbon Trading (PCT) scheme, a novel policy instrument for generating citizen behavioural changes towards lower CO2 emissions. Moreover, the project demonstrates robust multi-stakeholder and multi-level governance as one of its main activities was to develop Lahti's first Sustainable Urban Mobility Plan (SUMP).

Context

Lahti is a pioneering city, one of Europe's first urban areas to commit towards achieving carbon neutrality by 2025. To meet such an ambitious target, the city needed to test new ways of lowering CO2 emissions. One possible area of intervention was urban mobility, as, on average, traffic emissions account for almost 25 % of total emissions in EU cities. With Lahti being a medium-sized Finnish city with a population around 120 000 inhabitants, it needed to carefully review its urban mobility policy in order to have a chance of meeting its carbon neutrality objective. Thus, Lahti decided to tackle the fragmented nature of decision-making process related to urban mobility and focus on developing the city's first Sustainable Urban Mobility Plan (SUMP). More than a strategic process, the SUMP developed under CitiCap would also test and integrate a new set of incentives for citizens to transition to sustainable mobility options. This meant a strong paradigm shift, from an infrastructure-centric mind-set, towards a behavioural change one. Such a novel
approach would be met with resistance, especially with no available data to inform an evidence-based process of decision-making. This is why, CitiCap focused on testing two innovative elements and see whether they were viable policy options for sustainable urban mobility.

The first one was a voluntary Personal Carbon Trading (PCT) scheme. Under such a model, users aim to use only their assigned allowance. Exchanges between users with higher consumptions with ones with lower levels of consumptions are allowed, as long as overall the allowance level is followed. For the model to work, a series of incentives or disincentives may be used. With no prior PCT scheme tested for urban mobility in the last decade in Europe, CitiCap aimed at co-designing alongside residents, academics and technologists such a scheme and evaluating its impact for behavioural change.

The second element would be how to foster long-term behavioural changes observed under the PCT scheme through capital investments co-designed with residents and integrated in the new SUMP. This case study explores how the project CitiCap has been pursuing these objectives in the light of the key principles of Integrated Territorial Development.

Description

Enabling private-public innovation through multi-stakeholder partnership

Lahti Municipality played a key role in establishing the partnership for CitiCap, inviting key stakeholders in the area of urban mobility and behavioural change to co-design the structure of the project. As Lahti had already committed to the ambitious goal of becoming carbon neutral by 2030, the city had previously conducted various participatory processes. This meant that there was a high level of awareness on who were the key local actors, as well as of their skills and capabilities. Thus, the partnership came to be composed by two strong local universities and five private companies, in addition to the municipality and the regional agency (Lahti Region Development LADEC).
Although highly diverse and complementary, the partnership lacked including civil society or citizen groups. These were involved at a later stage of the implementation of the project. Also, it is noteworthy that some of project activities such as the development of the bicycle highway were included in the UIA bid after extensive consultations with civic urban mobility groups. This composition of the partnership was the element which allowed much of innovation of CitiCap to happen. Personal Carbon Trading schemes had not been implemented in the last decade due to complexities related to acquiring accurate mobility patterns data. Thus, by involving key technology companies as partners rather as suppliers, it became possible for the entire partnership to access for ideation purposes key patents owned by the companies. As Petri Martikainen from the partner
technology company MOPRIM explains: "Because I would say that this kind of project, or this kind of commercial deliveries would be impossible with other cities. Because in the current model, the city would need to describe in advance the whole thing [n.b.the innovation]. You are putting up the tender, and well, then you get answers for it".
It was this element that enabled the successful development of the CitiCap app, which accurately recognized any mode of transport used by a user. In addition, due to the work carried out by the partner universities it was possible to develop an assessment model for individual carbon footprints and their trading. To date, the PCT scheme tested by Lahti remains the only such scheme tested at city level in Europe in the last decade.

Involving citizens into assessing what would be a fair urban mobility policy

The CITICAP app was used for the first six months to collect mobility patterns data of 150 users which volunteered to be part of the reference group. The data was then used to determine an average value of emissions that could be considered a reasonable monthly allowance for the trading scheme. This quantitative approach was complemented by a strong participatory process, with 60 one-to-one meetings between Lahti residents and the

APP development team. The aim of the meetings was to co-design a trading system of allowances that would be considered fair by the residents, one that would take into account different life situations.

> We knew that there are people who are already below this target line, and some people who have, let's say, 100 kilos a week of CO2 emission. So we were discussing [n.b. in citizen workshops] who should be the ones to reduce and what would be a fair way? Obviously, there were a lot of different opinions. But on average, people felt that their situation in life should have an impact. And because in this baseline we also asked some background questions from users, we were also able to calculate how much on average your emissions have increased, if you, for example, have one or two children, or if you are living far away from the city centre. So we were able to calculate how many additional emissions allowances you should get from these different aspects of life

declared Ville Uusitalo from Lahti University of Technology (LUT).

In this way, the trading scheme of carbon allowances was fitted to match the needs of a variety of profiles of Lahti residents.

As a result, following also a successful social media campaign, the CITICAP APP got 2500 active users, number which significantly exceeded the originally planned 1300 users. Moreover, according to the final survey, 91% of respondents considered the implemented user-specific emission allowance allocation method as a fair way to implement PCT.

The CitiCap App, © City of Lahti

Granular place-based data and the importance of setting up a baseline level

Given the fact that a voluntary personal carbon trading (PCT) scheme had not been tested before at the city level in the recent decade in Europe, the project invested significant attention in developing a baseline for the data that would later be evaluated. For this, the CITICAP app made use of detection technologies provided by the project's private sector partners based on the GPS and accelerator sensors of phones. In this way accurate place-based data was collected which resulted in new urban mobility datasets.

The gathered data was directly connected to mobility patterns and behaviours of Lahti citizens who opted for using the CITICAP app, but also with key socio-economic indicators such as income, mobility impairments and household mobility needs. In fact, the app acted as the core instrument both for data collection, but also for citizen engagement in CO2 allowance trading. The baseline informed the average value proposed by the PCT pilot scheme to be observed by each participating citizen (17- 21 kg CO2eq), but also allowed the overall evaluation of the impact of a PCT scheme for behaviour change toward sustainable mobility options. As a result, the evaluation results captured the cross-sectoral implications of a PCT scheme, both in terms of environmental impact, but also of social norms around compliance.

An element that needs further attention is the sustainability of the tools developed in order to capture the place-

based data. Although successful for the purpose it was designed, the app was discontinued after the completion of activities. Even though the project partners tried to secure funding for the app during project implementation, applying for Finnish start-up funds or European research and innovation grants, most applications were not successful. An adaptation for the app is currently being considered under the Horizon project Climate Campaigners. One major challenge for ensuring the sustainability of the app is the decision around its business model. In Citicap, the app was designed for a non-commercial use and most sustainability models rely on a business model that require commercialization. Also, even though CIticap app attracted strong international attention, with several cities contacting Lahti for sharing and possibly replicating the voluntary PCT scheme, there was low willingness to pay for this transfer.

Make the change easy: development of the Lahti smart bicycle highway

CitiCap was a core milestone in Lahti's transformation as a carbon neutral city. Apart from testing the voluntary PCT scheme and seeing how much citizens could alter their own behaviour in order to cut down CO2 emissions, the other project activities focused on how to make easy such a behavioural change. This meant on the one hand for the city to have a coherent strategic plan and this is why under CitiCap Lahti's first Sustainable Urban Mobility Plan was developed. On the other hand, it meant key investments in further expanding the infrastructure for sustainable mobility, namely a bicycle highway. As the project coordinator, Anna Hutu explains: "I would not put the burden on a single citizen because it is, like I said, the goal is that we enable sustainable mobility so that only after we can really provide that kind of conditions in our city that make for instance cycling and walking safe and convenient. Only after that we could really like start like heavily put pressure on single citizens that hey, we the city are ready. So now you can just start walking and cycling". In fact, the co-creation workshops with citizens and the consultation processes for developing the SUMP focused on how to best decide on a route for the future bicycle highway and what safety elements should be prioritized- type of paint used, its visibility in various weather conditions, cameras and speed bumps etc. After several challenges related to few initial contractors responding to the tender, construction work began in the summer of 2020. By February 2021, the work was completed, with 2 kilometres of cycle path and a new bridge now being part of Lahti's sustainable mobility infrastructure.

Nature of integration

The work of CitiCap corresponds to integrated territorial development at various levels. It has a strong place-based approach, working at a city scale and clearly taking into account the resident's mobility patterns. In this way, better local policies are developed that respond to the needs of the citizens and their particular life situations. Moreover, CitiCap has a strong element of multi-actor and multi-governance approach, working at local and regional level for developing the city's first Sustainable Urban Mobility Plan. In doing so, it managed to create a shared understanding between key stakeholders on the changes needed in order to commit to the ambitious objectives of becoming a carbon neutral city by 2025.

What is more, the project dedicated significant resources for fostering a culture of co-creation and participation. Citizens were involved in all project activities, from consultation for developing the SUMP, choosing the route for the bicycle highway, determining what is a fair individual CO2 allowance level to actually being part of the voluntary PCT scheme. This approach reinforced the collaborative working culture in Lahti, and also served as an international example for the local context needed for PCT to be considered a viable policy measure.

Finally, the fact that CitiCap managed to successfully test in real city conditions a voluntary PCT scheme shows its strong cross-sectoral approach. It has combined social and environmental measures for expanding the sustainable mobility options available now to Lahti residents.

Takeaways

- Capitalising on multi-stakeholder partnerships to advance innovation: the city of Lahti successfully created an enabling environment for innovation, involving academia and SMEs in co-creating new use cases for emerging technologies for urban mobility alongside public actors and citizens.
- Investing in place-based granular data and a clear data infrastructure: CitiCap manages to successfully address the scarcity of detailed urban mobility datasets that can inform evidence-based policy making. By dedicating significant resources in the data infrastructure behind the project's app, it managed to generate reliable and scientifically valid data, both for the baseline and for voluntary Personal Carbon Trading scheme.
- Understanding the benefits and limits for new tools for citizen engagement: the CitiCap app proved to be an efficient tool for citizen engagement in the voluntary PCT scheme. Such a tool requires however long-term and dedicated resources in order to keep the experience attractive and desirable for users and it is recommended to consider how to have dedicated

community manager role.

- Aiming to directly inform key strategic multi-level processes: Since its co-design, CitiCap has been closely linked to the design processes of the city's key planning documents, including the new Masterplan and the Sustainable Urban Mobility Plan. By doing so, all the activities have been aligned with the city's strategic objectives, while also serving as milestones that the city was actually delivering the changes it committed to. Based on this approach, Lahti was able both to build its international reputation as an environment-conscious city, but also win the title of 2021 European Green Capital.

Further reading and selected key resources

- City project's page
- Final Report

See on UIA website