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URBAN INNOVATIVE ACTIONS

The Urban Lab of Europe !

The CitiCAP (citizens' cap and trade co-created) Project Journal N° 5

*Project led by the **City of Lahti***

URBAN MOBILITY

European Union
European Regional Development Fund

Région Hauts-de-France

The CitiCAP project

The **CitiCAP** project will experiment a Personal Carbon Trading (PCT) scheme to promote sustainable and low-carbon urban mobility by promoting and rewarding behavioral changes.

The PCT scheme will be co-designed in the framework of the Sustainable Urban Mobility Plan and through a participatory and user-led process. Different experimental PCT models will be compared, in which citizens will be able to monitor their emission and budget their carbon use via an open mobility data platform. The urban mobility data gathered though the platform will be relevant for public authorities, as well as to foster sustainable mobility services and business opportunities. In parallel, a package of incentives will be put in place to encourage the use of the PCT scheme, and carbon-neutral bicycle highway lanes investments will be carried out in order to support low-carbon choices of transport.

Partnership

- City of Lahti
- Lahti Region Development LADEC Ltd- Business organisation
- Lappeenranta University of Technology LUT- Higher Education and Research Institute
- Lahti University of Applied Sciences LUAS- Higher Education and Research Institutes
- MOPRIM Ltd- SME
- Good Sign Ltd- SME
- Infotripla Ltd- SME
- Mattersoft Ltd- SME
- Future Dialog Ltd- SME

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1. EXECUTIVE SUMMARY

The fifth edition of the CitiCAP (citizens' cap and trade co-created) Journal describes and analyzes the progress of the project in the last six months, from March to October 2020. During this period, the progress of the project is in line with what was planned, despite the inevitable impact of Covid-19.

The content of this edition is based on meetings with the city of Lahti that took place over September and October during the Journal's timeframe. Section One accounts progress to date and details the launch and user feedback of the Personal Carbon Trading (PCT) scheme which lies at the core of CitiCAP. It also provides an update on some of the scheme's other main elements of the project - the development of the Sustainable Urban Mobility Plan (SUMP) and cycle highway initiatives.

Section Two outlines the main implementation-related challenges faced by the project. Although progress is very good overall, attention is needed in some of the challenges - notably as a consequence of Covid-19 - that cut across all UIA projects (financial sustainability and scaling up) but performance can be seen to be good and improving when compared with previous Journals. Finally, Section Three looks at the key learning points and opportunities following the last six months as the project enters its final phase.

The next journal will pay further attention to the advancements of the implementation process, notably the development and lessons learned during the final stage of the project.

Project Summary

The goals of the CitiCAP project are to promote sustainable mobility, collect and make available digital data on mobility and develop new transport services for citizens. The CitiCAP project will experiment with a PCT scheme for mobility as part of the Lahti region's transport policy and build a main cycle route based on smart solutions (Lahti city centre – Apilakatu street).

In practice, PCT means that citizens will benefit from reducing their own emissions from mobility. They could receive, for example, various benefits in the traffic environment, as well as incentives for service use. For instance, citizens whose mobility emissions remain below their personal quota levels could be offered cheaper public transport or bicycle maintenance services via an online marketplace. The aim is also to get the city and local businesses involved in the CitiCAP project, as they can reward their employees for taking sustainable transport options.

The project seeks to build a new model for the SUMP process by integrating the traffic and spatial master planning processes into the same co-designed entity for the first time. Strategic investments in cycling will be included to increase its impacts and will include a smart main cycle route through the city centre.

One of the basic requirements of CitiCAP is to collect comprehensive data on people's mobility choices. A light and replicable mobility data platform will be created to implement the PCT to serve as a planning/assessment tool for City mobility planners as well as an open access mobility data source for innovators, that could be used by other cities.

Partners:

City of Lahti; 1 Business support organisation: Lahti Region Development LADEC Ltd; 2 Higher Education and Research Institutes: Lappeenranta University of Technology (LUT); Lahti University of Applied Sciences (LUAS); and SMEs: Moprim, Future Dialog, Good Sign, Infotripla and Mattersoft.

2. SECTION 1 - CITICAP UPDATE

Journal Four identified three key areas that needed to be tackled in order to progress against the CitiCAP goals and milestones:

- How to change the mobility attitude and behaviour of citizens to promote the shift from private car use to sustainable mobility?
- How medium-size cities may develop their mobility environment: increase the use of sustainable mobility modes, enhance the multimodality and decrease CO_2 emissions, while they cannot use all mass transport options that are available for larger cities?
- How to engage the local community to ensure sustainable urban mobility planning and service provision?

The following section will focus on how CitiCAP is helping the city progress against these areas and provides an update on the project's main elements in relation to this: the PCT, SUMP and Smart Bicycle Highway.

Research phase of citizens' PCT begins

In June 2020, the scheme started transitioning from the test phase to research. The smartphone application has been worked on through co-development, and the largest possible number of Lahti-based users are now being signed up through a range of awareness raising events. The aim is to monitor how the mobility and mobility choices of Lahti residents change in different situations.

The PCT application has been tested for just over a year and during the coronavirus spring, the application has provided valuable information on the change in mobility habits (this will be touched upon later). The application works better all the time but there are still growing pains, especially in the IoS version of the application. The research phase will last at least until the end of this year and will be critical to the long-term success of the project.

Understanding changes in mobility patterns is vital to carbon trading as a cap level has been created for emissions and going below it earns you virtual money. The more sustainable forms of mobility you use, the more you earn. The money can be used, for example, to redeem discounts in local stores.

"*The amount of virtual euros earned from saved emission allowances will change during the study, and we want to see how this affects mobility decisions*", says Assistant Professor Ville Uusitalo from the Lappeenranta-Lahti University of Technology.

"*Using the carbon trading application and participating in the experiment is voluntary, but we would like as many people as possible to try and use the application in order to obtain the most comprehensive data possible for the research.*"

During the research phase, surveys and interviews will be used to gather feedback and ideas about what is good and what is bad about personal carbon trading as well as how the system or its fairness could be further improved.

Lahti is the first city in the world where citizens' personal carbon trading in the mobility sector is being studied. "*Many European cities are interested in the project and Lahti has been recognised internationally as a pioneering city.*

The information collected from the application can be used in many ways to support urban planning as well", Anna Huttunen, CitiCAP's Project Manager says.

Using the application does not require any special activity from the user, with mobility identification and carbon trading working automatically. Test users initially found the app trouble-free to use, especially since travel modes need not be personally entered into the application. Around 60% of users easily understood the purpose of the PCT as well as the application and around 60% of users found the application easy to use and around half found the PCT as an interesting policy development. Importantly, around 70% of users said that the application made them think about their transport behaviour and its impact on the climate and around 30% of users said that it made them think about changing the way that they travel. Users continue to report on development needs, for example, around 80% of respondents that were involved in the testing experienced bugs or operational problems such as with travel mode recognition, but the functionality of the app has since been improved on the basis of feedback received. So far 3,000 residents have downloaded the app, with up to 200 users simultaneously active.

2.1 PCT developments: Making public transport cleaner & zero emissions mobility easier

The long-term success of the PCT scheme also depends on the city providing citizen's with low emissions mobility options so as to provide an alternative to private vehicles. One such initiative is through the provision of cleaner public transport options and in early July, buses began running on biodiesel and electric bus offerings will also start next year.

Second-generation renewable biodiesel fuels are now being integrated in new bus transport contracts. The first transport offering provided by the new agreement started on 1 July on lines 7 Karisto-Renkomäki, 12 Kauppatori-Ala-Okeroinen, 13 Nikkilä-Niemi, 17 Joutjärvi-Ruoriniemi and on small LASSI city lines operating between Kiveriö, Pyhätön and Urheilukeskus. In 2021, there will be 17 electric buses operating

and by July 2021, the power sources will be: electricity: 17% biodiesel 41% and diesel 42%.

Biodiesel can be produced from, for example, various sustainable crops, food waste, palm oil and wood. Second-generation, sustainable, renewable biodiesel is produced from plant and wood-based cellulose as well as from waste and food residues which are, for example, animal or fish fat waste from the food industries, vegetable oil production residues and residues from used frying fat and technical maize oil. The use of second-generation renewable biodiesel is more sustainable and its production does not compete with food production. The total CO2 emissions of renewable biodiesel are about 80-90% lower than those of fossil diesel. Renewable biodiesel also burns cleaner than traditional diesel, which reduces local emissions, especially on older buses.

The City has set itself the target that by 2030, bus traffic will be handled with renewable diesel, biogas or electricity. The city also has the objective to double the market share of public transport and walking which is hoped to replace over 10% of the journeys currently undertaken by private vehicles. This dual approach - encouraging the uptake of low/zero emissions sustainable forms of mobility/public transport will not only provide people with alternative low emissions mobility options to meet the city carbon neutrality target it also offers citizens with affordable and accessible means to reduce their individual emissions mobility footprint, especially if they are involved in the PCT. In order for this to be successful, a modal shift to sustainable transport options is therefore essential but Covid-19 has had a significant impact on the way that people are choosing to travel which could have serious impacts on people's behaviour and the city's modal shift aspirations towards public transport in the long-term.

2.2 Covid-19: How have users' mobility decisions changed over these past few months?

Since the outbreak of the Coronavirus, people's mobility has changed dramatically across Europe and within Lahti. Across Europe, cities have experienced a dramatic change in people using public transport with passenger numbers dropping by up to 95-90% in some cities. This is also reflected in some parts of Lahti: the movement of residents decreased by about 50% due to an exceptional situation; car traffic dropped by around 30%; and the number of passengers in bus transport within Lahti decreased by almost 80%.

However, since the lifting of restrictions, data from the PCT has shown that mobility has greatly increased and recent movements have been even greater than in the spring before the start of the state of emergency. The use of public transport such as bus and train remain below pre-Corona times but at the same time, the car's share of mobility has now increased. The car accounted for about 70% of the movement in the spring season, compared to about 55% before the restrictions. The question now for Lahti is whether behaviour patterns that increasingly favour private vehicles will become the norm.

2.3 A proposal for a master plan finalised & cycles routes move towards completion

The proposal for the Lahti Direction work 2017–2020 (see previous Journals and Zoom-In 2 for background information) was made available for consultation over the summer and includes the Lahti proposal for a SUMP. In total, it received 13 official opinions and 78 opinions, including from various associations or organizations. In addition, 236 people participated in the map survey of the draft cycling network, from which 501 map responses were received, which were all generally favourable. Consequently, at the end of the summer period it was reported that the plan for the SUMP had been completed as part of the Lahti Direction work which is a major milestone for CitiCAP.

Another related CitiCAP project is the new cycle route to the southern part of the city. The excavators are currently busy and one section of road at a time becomes a finished surface. The new bike path is now 2.5 kilometres long and will run from Apilakatu to Matkakeskus. One of the biggest improvements in terms of safety is a new bridge on Heikinkatu (see picture 3). The works began in April and have progressed on schedule throughout the summer. Having started on Apilakatu, the construction crew is now moving towards Lahti Central Station, and paving works have already got underway in Laune. Despite some sections having been completed, diversions remain in place until the entire network is ready.

The city is now hoping to finish the works by the end of the year but some of the tree planting alongside the route may need to wait until next year. Most of the CitiCAP cycle lanes are being

Picture 3

built by widening and reconfiguring existing roads. The cycle lane project has also given the City of Lahti an opportunity to explore new innovative solutions. For example, the routes will be lit using technology that keeps road markings and traffic signs visible in the dark. The markings will be projected onto the road surface so that they cannot be hidden under snow.

Sophisticated winter maintenance will also help to keep the cycle lanes accessible throughout the year. A technique based on snow brushes has been piloted in Lahti in previous years, and a total of 20 kilometres of cycle lanes are due to be brushed this winter. Importantly, the new CitiCAP network will give the city a testing platform that will allow the trailing of new techniques and smart solutions, and the city is already preparing for these kinds of experiments by installing the necessary cabling for future initiatives.

The latest (and hopefully last) obstacle that the engineers must now overcome involves a rock cut on Moisionkatu. The cycle lane there may end up being unfortunately narrow if the rock face cannot be drilled. Adding cycle lanes to existing infrastructure is always challenging - costs can easily mount up and a flexible schedule is a must, as not everything can be predicted and planned for. Over the past months, the engineers have had to be especially inventive in getting around root systems. The crew has managed to save most of the trees lining the new cycle lane network, but there are two or three columnar aspens that will need to be felled by the Shopping Centre Valo location. Saplings will be planted to replace the felled trees. Any diseased trees found on the property will also be removed.

The CitiCAP cycle lane network will be one of the main bike routes in Lahti. These routes provide fast and easy access for cyclists commuting from the suburbs into the city. The CitiCAP network will link to another system of cycle lanes built in connection with the new bypass at its northern end on Apilakatu. Once the CitiCAP network is completed, cyclists and pedestrians will have a safe route from Lahti Central Station all the way to Renkomäki. As with all sustainable transport projects, their ultimate success will depend on people using them and if that is to happen, people need to be aware of the sustainable transport options available to them so it is vital that the city engages its citizens.

Engaging citizens - EU Mobility & Cycling week happens!

A key time slot in 2020 for the CitiCAP project was the EU Mobility Week which is an annual initiative by the European Commission which encourages cities and regions to showcase their commitment every September to clean and sustainable urban transport. This year's EUROPEANMOBILITYWEEK theme is 'zero-emission mobility for all' which reflects the ambitious targets of a carbon-neutral continent by 2050, as laid out by Ursula von der Leyen, President of the European Commission, when presenting the European Green Deal. Given the theme of this year and the fact that Lahti has similar political aspirations/targets for net neutrality as well as being the incoming EU Green Capital, this year's events took an even more significance to the city and CitiCAP.

In total, 19 events were organised with over 500 people attending highlighting the importance of

accessibility to zero-emission transport and to promote an inclusive stakeholder framework so as to scale up the use of the PCT and sustainable transport behaviours more generally. This is particularly important for CitiCAP as the project's objectives are more than achieving reductions in people's mobility emissions but aims to demonstrate the means and measures that can be taken to promote a carbon-neutral and inclusive urban environment and lifestyle.

During the week, people in Lahti were encouraged to reflect on their own, everyday mobility choices and their impact on the environment and society. For example, in Mobility Week, encourage people to try changing their car to a carpool, or arrange a walking meeting at the workplace. Key events organised during the week included a dedicated event on the 16th of September focused on guiding citizens on how they as an app user and city can work together to resolve PCT usage issues. Other events explored alternative sustainable mobility options and choices around the city.

The week before, Lahti also held its own Cycling Week from 4 to 13 September. Several events were also arranged under the umbrella of the CitiCAP project, including organised bike rides/city bike days, a bike flea market and the opportunity to explore electric cycling. The week has helped the city not just build momentum for the Mobility Week and engage citizens on the benefits of cycling with the aim of bringing about a cultural change in favour cycling but it was also an opportunity to raise awareness of other elements of the UIA project and how they all link together.

Dissemination activities were not limited to the City of Lahti as the CitiCap story has also been shared all over the globe. The PCT has attracted interest from some of Europe's major press organisations such as France TV Info in September 2020 and The Telegraph in August 2020. Reaching around 83 million potential readers around the world, it is helping the City reach out to a global audience way beyond what was anticipated, which can only help the upscaling of PCT's going ahead.

3. SECTION 2 - CITICAP CHALLENGES

The biggest current challenge facing the entire mobility sector is the Covid crisis but a number of specific challenges have been identified that cut across all UIA projects. The table below provides a traffic light analysis of what these are and some observations as to how the project fairs against them based on current and planned initiatives.

TABLE 1: MAPPING CitiCAP AGAINST THE ESTABLISHED UIA CHALLENGES

Challenge	Level	Observations
1. Leadership for implementation	Low	With the imminent appointment of Lahti as the EU Green Capital for 2021 and the commitment to be carbon neutral, it has helped raise the profile of the project within the city meaning that leadership for implementation is considered to be strong. This will help to ensure collaboration across a range of city departments going ahead which will help ensure coordinated implementation of the SUMP and Master Plan. The Covid crisis, from the writer's perspective, has also increased the accountability of public institutions to increase transparency in decision making and for providing city services. As such, leadership for implementation can be seen to be strengthened to ensure that the project is delivered to time and on budget.
2. Public procurement	Low	So far the project has very much focused on getting the PCT right in terms of the on-line architecture and policy side as well as getting stakeholder buy-in to infrastructure plans/developments, notably since the city is getting more input and feedback from users. As this is an EU funded project there have been no major procurement issues at this stage as everything has been budgeted for. The major issue in relation to public procurement is linked to the scaling up of the project in other cities (further information is outlined in challenge 8 below). This is specific to the PCT in the fact that it is not possible to use the Lahti platform in other cities because a one-size fits all approach will not work as it will need to be tailored to meet local needs and standards. As such, new individual platforms will need to be established to meet local needs and specifications which will come at a cost that are not budgeted for under the UIA initiative. This could impact the future development of the scheme beyond Lahti but if the scheme is shown to drive the local economy and businesses (despite Covid) then this will provide a strong case for others to invest in future PCT schemes. One mitigating factor is that Lahti plans for a more aggressive PCT marketing campaign in the coming months with other cities to encourage its further uptake.

Challenge	Level	Observations
3. Integrated cross-departmental working	**Low**	Given the range of stakeholders involved and the need to engage a range of city departments, this remains challenging but as mentioned above, leadership for implementation is effectively addressing this challenge. The fact that all relevant city departments are involved in the SUMP, which received favourable public support and that local and regional public transport systems are carried out by the same entity should help the integration of the local SUMP with the wider regional spatial Master Plan. Now that the city is united by a shared vision under the Master Plan, all aspects of the city will need to work towards its delivery. This will need to further encourage stronger cross-departmental working which should be achieved in 2021 through Green Capital initiatives currently under discussion.
4. Adopting a participative approach	**Low**	High levels of participation are evident across stakeholder groups notably around scaling up of the PCT. In addition, efforts around the EU Mobility week have further helped to engage local stakeholders. Looking ahead, EU Green Capital initiatives will build on and further strengthen the participative approach of the project, which has always been a strength of CitiCAP. The co-creation nature of the project comes with its own unique challenge in the fact that it has delayed the implementation of plans, notably with the cycle superhighway. It is important that the co-creation element of the project is not lost, but rather embraced as this will ensure that the UIA project continues beyond the envisaged timeline. So rather, the project should be seen as an initiative that is ingrained in city life, which the Green Capital should take further forward.
5. Monitoring and evaluation	**Low**	As more test the PCT, the more data will become available for the city to assess which in the long term will help the city to monitor and evaluate the success of the SUMP and the scheme itself. There is still a lot of data that needs to be collected if there is to be an in-depth assessment. At the same time, the data collected during the Corona Spring is providing the city with unique insights on the impact of the pandemic/restrictions that were put in place which will help the city better plan for the future so that it can become more resilient and prepared for future shocks.

Challenge	Level	Observations
6. Financial Sustainability	**Medium**	The objective is to establish a joint venture to ensure long-term funding and upscaling beyond the UIA project timeline. Progress has been made in identifying appropriate partners but the UIA project will need to provide the business case for PCT future investment. The challenge lies in the fact that there is no traditional carbon (monetary) market attached to the current PCT model but this is where data can play an important role. As more test users are encouraged to join the scheme, this will provide more incentives for businesses to also join and therefore increase the financial stability of the project.
7. Communicating with target beneficiaries	**Low**	Communicating with target beneficiaries has been significantly scaled up during the period covered by this Journal. The intention is to build on this through the Green Capital in the coming months and year. In addition, the city's PCT has attracted significant interest from news corporations around the world helping to spread the Lahti story to a global audience.
8. Upscaling	**Medium**	Fruitful ongoing discussions regarding scaling up has been had with a number of cities, not only in Europe, but also in the United States and Canada, but Covid may now impact the ability of other cities to take up the PCT scheme. Lahti will continue to look to arrange follower city events and workshops during the remainder of the year to share lessons learned/research on the key building blocks of how to develop a PCT scheme. This should hopefully bring further scale to the project aims and engage the wider business industry so that they can see the benefits of investing into such an approach. It is envisaged that with greater focus on the project during the CitiCAP final conference at the end of the year and during 2021 EU Green Capital celebrations will help to engage and encourage follower cities to take up the CitiCAP model.

4. SECTION 3 - TAKE AWAY POINTS & CONCLUSIONS

These last six months have clearly been turbulent times for CitiCAP but also for the citizens of Lahti. The implications of Covid-19 will not be fully known for years to come but this has not stopped the project delivering the major milestones of the project to time and to budget. This is something that the city should be rightly proud of.

The pandemic could have put a stop to everything but rather it could provide a unique opportunity for citizens and the city to assess their mobility choices in favor of sustainable transport options. Not because they wanted to but because they had to. This unique opportunity of reflection should be built upon and taken advantage of. This is why it is so important that the availability and accessibility of sustainable transport modes is scaled up in Lahti - which CitiCAP is striving to achieve - as only this can facilitate the change in behaviour that the pandemic can bring about in a catalytic manner both now and in the long term.

To conclude, achieving net zero carbon and managing a 'just transition' through CitiCAP remain huge challenges for Lahti but linking these goals to a new way of thinking about the future will be fundamental if the city is to become more resilient, more sustainable and smarter in their use of technology. Learning the lessons from Covid-19 must be used to help increase resilience, and plan and manage for future pandemics and shocks as well. But this will mean building and re-imagining visions for CitiCAP both now and in 2030 and beyond to 2050. Bringing key stakeholders (civil society, industry, government and academia) together to ensure these city visions are co-produced and participatory, and underpinned by a roadmap to the future, will be crucial to the ongoing success of the project. Thankfully, through CitiCAP, the city has a head start.

Urban Innovative Actions (UIA) is an Initiative of the European Union that provides urban areas throughout Europe with resources to test new and unproven solutions to address urban challenges. Based on article 8 of ERDF, the Initiative has a total ERDF budget of EUR 372 million for 2014-2020.

UIA projects will produce a wealth of knowledge stemming from the implementation of the innovative solutions for sustainable urban development that are of interest for city practitioners and stakeholders across the EU. This journal is a paper written by a UIA Expert that captures and disseminates the lessons learnt from the project implementation and the good practices identified. The journals will be structured around the main challenges of implementation identified and faced at local level by UIA projects. They will be published on a regular basis on the UIA website.

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