



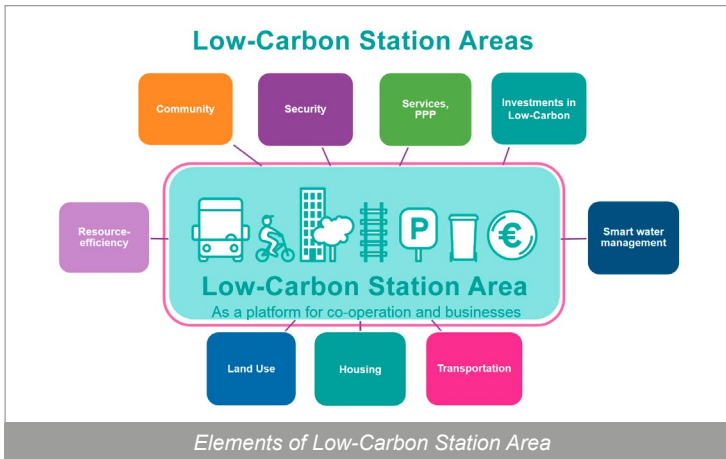
City of Helsinki/Liisa Takala

NEWSLETTER 5 | APRIL 2018

Shaping Low-Carbon Areas

The 5th International workshop of the SMART-MR project was held in Helsinki 11th and 12th of April. The workshop, organized by Helsinki Region Environmental Services Authority (HSY), discussed how to create low-carbon areas.

a bike there. The use of public transport is also seamless. Daily mobility does not require a passenger car. The low-carbon station areas provide a sufficient service palette for everyday needs. A vibrant station area enables a sharing economy.



In the Helsinki region, the aim is to turn station areas into residents' low-carbon home villages: magnetic areas to live, move about and work. To reach this goal, experts from eight European metropolitan areas got together for a two-day workshop in Helsinki to develop models for low-carbon station areas and to share their experiences.

Station areas hold a key position as enablers for climate-smart everyday life. They are nodes for traffic and offer an excellent platform for low-carbon urban development. It is characteristic for low-carbon areas that they include energy-efficient buildings. Those areas are designed so that it is easy to walk and ride

HSY has developed a Low-Carbon District concept as part of the SMART-MR project. The purpose of this concept is to recognise the key measures for promoting a low-carbon approach in the station areas and to integrate them in the urban planning.

The Smart Kalasatama project, in collaboration with Forum Virium and the City of Helsinki, was presented to the workshop participants during the site visit. The aim is to turn Kalasatama into a model district of smart urban development using flexibility and experiments. The topics of the Kalasatama visit concern energy and public transport related solutions and the promotion of a sharing economy.

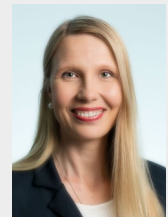


SMART-MR (Sustainable measures for achieving resilient transportation in metropolitan regions) is an Interreg Europe project running from April 2016 until March 2021 with a total budget of approximately Euro 2,2 million.

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All participants of the 5th SMART-MR workshop. Photo: Nuppu Hepo-oja

Enhancing Project Results by Initiating Additional Funding

Janez Nared, Lead Partner, SMART-MR

Interreg Europe programme gives the partners of the selected projects an opportunity to exchange knowledge and learn about experiences and good practices of their counterparts in other countries. From this perspective the SMART-MR project is really doing an excellent job: so far five international workshops have been organized, the latest in Helsinki in April this year, where we discussed shaping low-carbon urban areas.

The inspiring work at the international level is designed in a way that partner regions could benefit the most - not just by learning from foreign experiences, but to really make policy change at home. Thus, the partners at the same time prepare their action plans, so the knowledge gained at the international level could be successfully transferred to their regions and included in policies and actions, mostly by using their own resources or through various successful calls for proposals.

So far the SMART-MR project has successfully initiated three activities. These were acknowledged and co-financed by the respective target groups.

Sustainable regional mobility strategy in Ljubljana Urban Region, Slovenia

In Slovenia, planning at the regional level brings numerous challenges as there is no regional authority at this level and thus, the

decision-making competences are shared among the local and the national level. This divide is visible also in transport planning. National authorities are responsible for public transport, regional roads, national roads and highways, whereas local authorities are responsible for local roads, school buses and in case of city municipalities – for city buses.

In mobility planning, the Ministry of Infrastructure has provided guidelines and funding for sustainable urban mobility plans at the local level (9 municipalities out of 26 in the region), whereas mobility issues at the regional level are still to be solved. To tackle this issue, the SMART-MR project started the preparation of the action plan, focusing on the regional mobility challenges. By clearly presenting the need for action to the mayors of all the 26 municipalities in the Ljubljana Urban Region, they decided to support and co-finance the project activities with an additional €80 000 in order to prepare a sustainable regional mobility strategy. The process is coordinated by the Regional Development Agency of Ljubljana Urban Region and includes both Slovenian project partners, external experts and the stakeholders.

Support of the included municipalities is of crucial importance, as they – in the absence of regional authority – solely can supplement and interconnect existing local sustainable urban mobility plans with the elements that

take place at the regional level. To do this their commitment is needed, as well the ambition to overcome municipal borders and to give priority to regionally relevant solutions.

Sustainable density in station communities: the case of Ytterby, Sweden

The City of Gothenburg and its functional region are growing, and to avoid congestion and unsustainable building areas, the Gothenburg region and the Municipality of Kungälv have commissioned an expert study defining sustainable density in station communities. The concept of station communities as a form of transit oriented development is familiar mostly in Nordic countries. In the case of Ytterby, the location of the station community was defined as the space within one kilometre of a railway station. The goal of the study was to examine possibilities for densification of the area and at the same time for achieving guidelines for sustainable density.

By densifying the settlement around the railway station, the number of inhabitants is expected to rise up to 12 000 inhabitants as well jobs for an additional 4 000 workers, whereas the share of public transport passengers would increase.

Investing €7 500 of municipal assets in a study does not only provide a new approach

to master planning of a station community in Ytterby, but at the same time enables other interested communities in the region to use these guidelines in forming their regional station communities.

Smart station - climate solutions: Helsinki, Finland

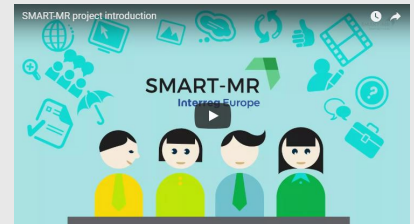
After drafting the action plan within the SMART-MR project, the Helsinki Region Environmental Services Authority (HSY) have started putting forward project proposals for ERDF funding. The first action "Smart station - climate solutions" started in December, 2017 and was implemented in April, 2018 in extensive collaboration with the Ministry of Environment, Finnish Transport Agency, Helsinki Region Transport, Sitra and Smart & Clean Foundation. The main idea of the event was to recognize SME's, that would be located in stations areas and would serve inhabitants in their low-carbon everyday life by providing them climate friendly and smart solutions.

During the project, HSY has created a large network of main authorities and government officials that are relevant to develop station areas as low-carbon districts. The Ministry of Environment is developing a "Sustainable city" programme, in which the station areas are now recognized as low-carbon neighbourhoods where new housing and services should be allocated. Also the Finnish Transport Agency is developing its principles to develop station areas with a good service promise. With effective communication and active participation in regional processes, HSY has contributed the development of low-carbon stations, for example in the new Helsinki Carbon Neutral 2035 -Implementation Plan and Resource Efficient City of Vantaa-Plan.

SMART-MR project

SMART-MR finds solutions and helps local and regional authorities improve transport policies. The key project outputs include **a guide on sustainable measures for achieving low-carbon and resilient transportation in metropolitan regions**, selected good practice descriptions, and policy recommendations.

Through these outputs, as well as dissemination events (such as political meetings, the final conference, and regional stakeholder meetings), SMART-MR contributes to Europe 2020 goals, Cohesion Policy, and the Interreg Europe Program.



Watch the SMART-MR project introduction video:
<https://www.interregeurope.eu/smart-mr/>

7 Interrelated workshops

Project partners share their experience in transport and mobility planning by organizing seven topically interrelated workshops:

- Workshop 1: Participatory transport planning
- Workshop 2: Creating a mobility plan
- Workshop 3: Low-carbon logistics planning
- Workshop 4: Development of and around transport nodes
- Workshop 5: Shaping low-carbon areas
- Workshop 6: Managing Transportation
- Workshop 7: Sharing economy



International Steering Group Meeting, Ilmala, Helsinki, 2018. Photo: Janez Nared



HSY office, Ilmala. Photo: Nuppu Hepo-oja

Development Aspects for Shaping Station Areas in Finland

Mr Olli Majjala, Ministerial Adviser at the Ministry of the Environment, opened the workshop by welcoming the participants to the workshop and to Finland on behalf of the National Government of Finland. Mr Majjala addressed the workshop topic of shaping low-carbon areas from three perspectives:

1. The integration of land use (housing, jobs and services) and transportation in functional urban regions

(FUA's) has been one of the priorities of the Finnish Government for over 10 years now. There are many reasons for this kind of development: growth has concentrated on bigger cities, and has resulted in urban sprawl; governance challenges of the functional urban regions consisting of many different and, in Finland, traditionally strong independent municipalities; climate change and the rising importance of sustainable means of transport, especially public transport on rails. The main current instruments to promote the integration include the *National Land Use Guidelines* which is a legal non-spatial instrument, renewed in 2018. One of the goals is to promote public transport, cycling and walking, and to create conditions for the smooth functioning of trip chains combining different travel modes and services, and for the smooth functioning of travel nodes.

Another main instrument is the *Letters of Intent cooperation procedures between the state and the four largest city regions in Finland* (Helsinki, Tampere, Turku and Oulu city regions). These concern integration of land use, housing and transport. The city region has to come up with a joint and integrated land



Mr Olli Majjala, Ministerial Adviser at the Ministry of the Environment, Korjaamo, Helsinki 2018. Photo: Sanna Kondratjeff

use and transport plan supporting sustainable urban development and creating conditions for a sufficient amount of reasonably priced housing supply. The State mainly acts as a guarantor and quality assurance of the plans, and offers financing for major new transport investments in the region. In addition, the state are also officially starting a comprehensive reform of the *Land Use and Building Act*, giving special importance to the planning instruments at the city regional level.

2. The need to cut greenhouse gas emissions.

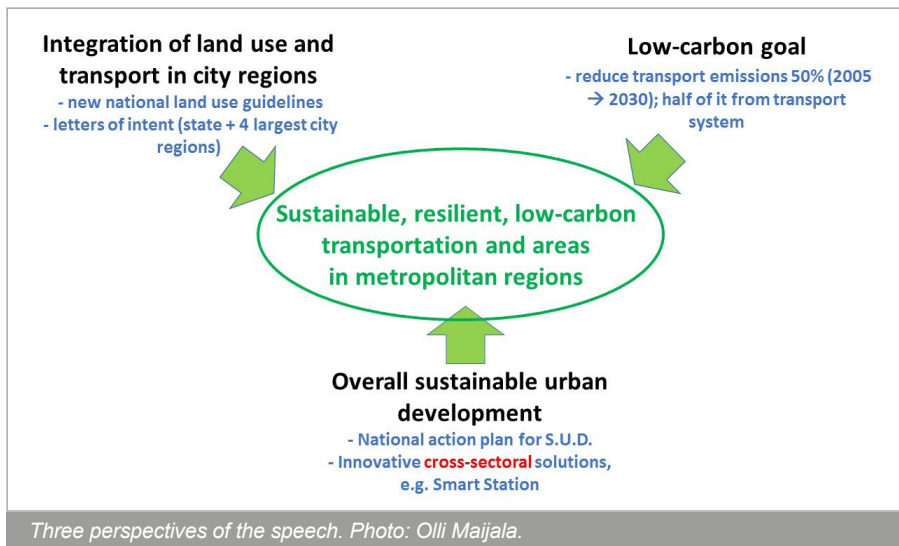
The transport sector covers about 20% of the total greenhouse gas emissions in Finland. Finland has a special Climate Change Act and a brand new medium-term climate policy plan. The plan applies to the non-emissions-trading sectors, and transport covers some 40% of these emissions. The goal is to reduce the transport emissions in half, from the situation in 2005 by 2030.

Half of the means come from the increasing energy efficiency of vehicles and changing from fossil fuels to renewables. However, the other half of the reduction is meant to come from increasing the transport system – this covers the means of reducing the need to travel, changes in the travel modes, etc. One newly introduced measure is the *new programme for promoting cycling and walking*, which now for the first time also includes investment support for cities' own traffic networks.

3. Umbrella-view of sustainable urban development.

Furthermore, Mr Majjala addressed the integrated approach and the interlinkages of the different themes in sustainable urban development. The United Nations' *New Urban Agenda*, adopted October, 2016, sets ambitious goals for the prosperity of cities in terms of social inclusion, equal opportunities for all and environmentally sustainable urban development. In Finland, one of the ways to implement the New Urban Agenda is through a *National Action Plan for Sustainable Urban Development*, which is under preparation. The action plan is a partnership-based approach aiming to catalyse and support the activities of the cities and towns while also including enterprises, universities and civil society actors.

The action plan especially focuses on innovative cross-sectoral solutions, combining for example health aspects and smart services, while also contributing to low-carbon development. This is where benefits are gained from city-to-city –networking and good practices, not just among Finnish cities, but also from abroad, as in the SMART-MR project workshops.



Three perspectives of the speech. Photo: Olli Majjala.

Professor Lehmann's Presentation of Low-Carbon Cities Provided Ideas for the Workshop

At the beginning of the workshop, Steffen Lehmann, Professor of Sustainable Architecture, gave a key note lecture on the subject 'Integrated Sustainable Neighbourhoods and Low-Carbon Cities'. Professor Lehmann leads the way in sustainable urban development. His experience in this field and architecture spans over 30 years. As part of his visit, Prof Lehmann also consulted on the project concerning the development of low-carbon station areas.

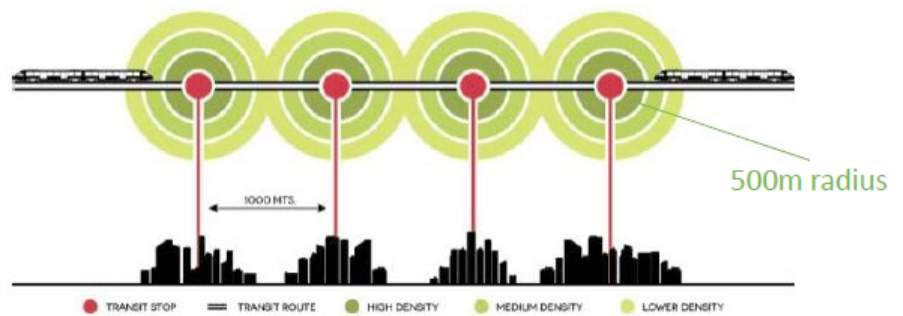
At the beginning of his lecture, Prof. Lehmann presented the UN's Sustainable Development Goals (SDGs) which form the basis for the 'New Urban Agenda'. Goal number 11 is the goal for Sustainable Cities. Cities are concentrations of energy, food and material consumption and they produce the majority of global GHG emissions and waste amounts. In order to reach the carbon-neutrality goals, cities have to reduce their emissions significantly in the short run.

In his lecture, he presented traditional urbanism, which highlights the human scale, compactness, mixed-land use and walkability. This also relates to the goal of an ecological city. Transit corridors are vital for urban development. Within the Transit-Oriented Development (TOD), cities are able to develop more housing within walking distance of stations and along railway corridors, thus reducing car-dependency and CO₂ emissions. In this way, more people are linked to public transport. He highlighted that while the whole of the city should be transformed towards low-carbon, the station areas offer particularly good starting points for this transformation. Railway stations are a microcosm of the larger city.

He pointed out some criteria for low-carbon areas at transport hubs. First, it is necessary to decrease car use and car dependency - planners should start to think about cities without cars. Secondly, public space is the key. The public realm is vital to everyday urban life. The quality of public space has a direct impact on health. Thirdly, he presented a sharing economy and new models of ownership as a means to reduce consumption. He reminded us that the infrastructure of the future has to be built now. Finally, he emphasised the need for re-naturing cities and showed how to implement more urban greenery and higher densities at the same time.



Professor Steffen Lehmann at Korjaamo, Helsinki 2018. Photo: Nuppu Hepo-oja



Railway stations as microcosm of the larger city. Photo: Steffen Lehmann

"Våga tänka bort bilarna, Helsingfors!"



Bevara och bygg nytt om vartannat! Det är ett konststycke som kräver ett klokt ledarskap i staden, säger Steffen Lehmann, professor och rådgivare. Ett av hans första projekt var 'Nya Berlin' på 90-talet. BILD: LEIF WECKSTRÖM

Professor Lehmann challenged the City of Helsinki to think about a city without cars. The article was published in Finland's leading national daily in Swedish, Hufvudstadsbladet. Photo: Leif Weckström

Good practice in Ljubljana: Eco Silver House



RRA LUR regional development agency
of Ljubljana urban region

This energy efficient demo multi-residential high-rise building is a research and demonstration project supported by the European Commission within the 7. Framework Programme. The overall objective of the project is to demonstrate and validate new technologies, concepts and systems for sustainable, low-energy building in order to test and assess the technological and economical feasibility of innovative energy solutions in the high-rise multi-residential building Eco Silver House.

The Eco Silver House is a multi-residential high-rise building located in the city centre of Ljubljana, the capital of Slovenia, at Dunajska road, near the northern line of the town's ring road. The net total area covers 23 455m², of which approx. 12 870m² belongs to the residential area. The project includes 17 floors, with 4 basement floors, where parking facilities and electric chargers for electric cars are available to residents as well as to other users. Beside the ground floor and mezzanine there are an additional nine (9) floors and two (2) terrace floors.



Eco Silver House

Main authorities and stakeholders involved:

Users and tenants providing their expectations and validation of the project results;

public and private clients and investors in housing and real-estate, preparing new design requirements and providing new sustainable solutions; architects, design and engineering organizations designing data and replications of the model; producers, installers and service providers testing and improving their products and services; as well as Local Authorities & National/Regional Public Bodies promoting energy efficiency and sustainable building

<http://www.ee-highrise.eu>

Why is the practice considered as 'good'?

The overall objective of the project

Climate Targets and Development of Low-Carbon Areas in Metropolitan Areas

The inventory of *Shaping Low-Carbon Areas*, which was put together for the workshop, provided extensive information on climate targets and shaping the low-carbon areas in different metropolitan areas. All SMART-MR metropolitan areas have the EU climate targets as their starting point but they were complemented by various national or regional strategies and programmes. Some of the urban areas have set stricter and more ambitious targets for emissions; such as the Oslo and Akershus targets of -55% of emission reductions after 2020 by 2030 and the Gothenburg area targets of -80% of emission reduction and fossil independence by 2030. Also in the Helsinki Metropolitan Area, the cities have just set their new targets for carbon neutrality already by 2030–2035.

Targets concerning the traffic sector have also been established. The target levels vary; for example the Rome target aims to reduce fossil fuels by -67% by 2050 and the Oslo public transport provider strives for fossil neutrality already by 2020. In turn, the Barcelona Metropolitan Area has set, in its Sustainability Plan, as the target the reduction of carbon emissions from traffic and fine particle emissions, both with their respective percentual targets.

Budapest has set, besides the SEAP (Sustainable Energy Action Plan), an acreage target for low-carbon areas so that the entire urban area is low-carbon by 2050.

According to the inventory, all SMART-MR metropolitan areas have at least individual low-carbon pilot projects, such as innovative city blocks, but the most have also low-carbon areas or zones under development. These are either comprehensive projects promoting low-carbon approaches or Low Emission Zones (LEZ). For example, Barcelona and Porto aim to develop the LEZ areas for reducing carbon dioxide and particulate emissions. The largest part of these development projects focus on changing the present urban structures to low-carbon structures but also new low-carbon areas are implemented. In some projects, former brown field areas are altered for office and residential use, which opens an opportunity to pilot new low-carbon solutions at the area level.

Other interesting development projects include for example, the Barcelonan *Superblock*, which is an urbanistic redistribution project to create green spaces for pedestrians. If the Superblock project was carried out to its full extent, it would cover a total of 500 blocks, in which case the impact would be remarkable from the point of view of the entire metropolis. In Rome, *Environmental Islands* are being developed. They are areas, which are enclosed within the main road network and where different measures are implemented for restricting traffic, such as access gates, different kinds of traffic calming measures and improved cycle paths.

Some of the metropolitan areas have recognised the potential of rail traffic for shaping the low-carbon urban structures, such as Gothenburg, Helsinki, Oslo/Akershus and Ljubljana. The aim is to control and steer the growth of the urban area closer to the rail traffic. Ljubljana is integrating railways to urban transport, developing new train stations, new city rail and new stops. A 10-year *FutureBuilt* programme was kicked-off in Oslo, in order to develop climate-neutral urban areas. The starting point is that new building activities must be located near traffic hubs and railways where rail with high frequency reigns. The *Urban Station Communities* project in the Gothenburg area concentrates on developing station areas in an extensive cooperation with the aim to curb the dispersion of the urban structure and to promote the sustainability in urban structures. In the Helsinki region, besides the SMART-MR project, there are several other low-carbon areal projects, such as Honkasuo, Kivistö and Niittykumpu, where the aim is set on the sustainable urban development.



Korjaamo Culture Factory, an atmospheric and historical tram depot unit, served as workshop venue. Photo: Nuppu Hepo-oja

Smart Stations – Climate-Smart Experiment Brings Businesses to Station Areas

Stations are important meeting places in citizens' daily life and nodes for climate-smart mobility. Enhancing the service palette of the stations makes citizens' everyday life easier and encourages movement towards low-carbon mobility. From a business operational viewpoint, the stations have a lot of untapped potential as a marketplace and media space. Stations also function as platforms for the development of climate-smart solutions in order to achieve climate targets.

In April 2018, four stations in the Helsinki Metropolitan Area, two stations in the Tampere City Region, the second largest urban centre in Finland, and one station in the growing city of Lahti turned into marketplaces and test beds for companies and low carbon solutions. The companies were provided a free-of-charge marketplace and test bed during a consumer event in the seven stations for the time period of 18 - 21 April 2018. The companies had a possibility to market and test their new or pre-existing products and services, and to collect consumer feedback. Different types of stations were selected for the event, and therefore, the focuses of the event and participating companies varied station by station. The event created a platform for developing solutions which enhance climate-smart urban development.



Smart Stations (Fiksu Assa) consumer event in April, 2018.

The experiment provided valuable information about the needs of stations' users and also experiences from stations as marketplaces. The majority of participating companies was interested in taking part again in a similar event in the future. Both companies and cities picked out services which were interested in settling at the station permanently. The organising cities were satisfied with the emerging cooperation with companies. The

stopping of the passengers during busy hours, varying number of passengers and others at the stations, gloominess of the stations and also different settings and development interests of the stations were recognised as challenges.



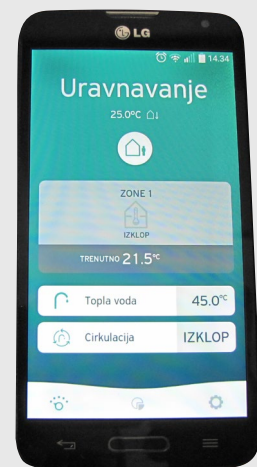
Suvi Anttila, Senior Specialist at the Ministry of the Environment (Finland), presented the 'Smart Stations' project at the SMART-MR workshop in Helsinki. Photo: Janez Nared

A wide network of station area developers, which has been created during the past few years in Finland and which includes several key operators from the public sector, made this event possible. During the past years, it has become evident in Finland how significant the stations areas are in an economic sense. It has also been much discussed how to put best the untapped potential of the station areas into use and so create magnetic station areas. The public sector tends to promote companies to locate in the station areas so that the station areas could turn into urban centres of low-carbon mobility and daily life offering vibrant, phenomenal experiences and new activities for citizens and users of the stations.

*“Let's rethink the concept of stations and the use of public space in the stations.
Smart Station = an experiment itself”*

As a part of HSY's SMART-MR project implementation the Smart Stations consumer event will continue with the ERDF funding during 2019-2021. The 2018 experiment was

is to demonstrate and validate new technologies, concepts, and systems used, in order to test and assess the technological and economical feasibility of innovative energy solutions in Eco Silver House building, and to contribute directly to the EU energy and climate change policy. Buildings are at the core of the EU's prosperity. They are important to achieve the EU's energy savings targets and to combat climate change whilst contributing to energy security. The fundamental principles of the sustainable development of a high-rise building are reflected in Eco silver house through comprehensive planning of the energy efficiency project savings, among others with renewable energy sources, perfect thermal insulation, wall soundproofing, a high-quality air conditioning system with a recuperator, sun protection, extremely rational air-conditioning appliances, intelligent control and management of electric and mechanical devices, machinery and tools, ecological materials, use of rainwater, micro solar power station on the roof, green roof, etc. The building is designed to fulfil the requirement for the passive standard (PHPP07) with the consumption of 10 kWh/m² energy for heating per year. The most important innovations of the EE-HIIGHRISE are the integration of the building envelope – HVAC system, intelligent integrated control system and renewable energy sources, fulfilment of the passive standard for a high-rise building with 11 floors and 128 residential units.



Good practice in Oslo: Fornebu – Low-Carbon Area 2027



City of Oslo
Agency for Urban Environment



AKERSHUS
County Council

Fornebu was the first modern civil airport for international flights in Norway. The land was acquired in 1934 and the airport was

finished in 1939, expanded in 1960, slated for closure in 1992 and closed in 1998. It covers an area of around 3.5 square kilometres.

The work of planning the new town started in 1994 and a clarifying master plan was adopted in 1996 (KDP-1). The next master plan was adopted in 1999, known as KDP-2, and today, due to the increased need for housing, a new master plan is being developed. The new plan is supposed to allow room for approx. 11 000 new homes, around 25-30 000 office spaces, extensive recreational grounds, large bird sanctuaries and areas for shopping, services and social infrastructure (kindergartens, schools, healthcare sites, youth clubs, etc).

There are several projects with high environmental standards in the area, and in 2014 the planning authority was awarded with a European spatial planning prize. Fornebu was pointed out for several reasons. One of the jury's comments was related to the underlying philosophy that the area should be a showcase for modern environmental thinking, emphasising sustainability in terms of energy, environmental standards and adaptation to climate change.

In March, 2018 the city council approved a new climate strategy, called Climate Wise 2030. The strategy has singled out Fornebu to be a demonstration area for the Low Carbon Area 2027. Today you will find Norway's first passive house kindergarten, built in 2009 and the world's first shopping mall with Breeam Outstanding classification, Fornebu S. Several projects are developing in cooperation with Futurebuilt, like the Oksenøya Centre (school, kindergarten, health care centre and sports arena) and new housing area with approx. 700 residents.

Main authorities and stakeholders involved:

Bærum municipality and the land owners. The Futurebuilt programme, the research programme Zero emission neighbourhood and SmartCity Bærum (a partnership between the municipality and business). The master plan gives a framework and guidelines for further planning, together with the Climate strategy and climate action plan.

<http://www.ectp-ceu.eu/index.php/en/?id=299>

Why is the practice considered as 'good'?

In the next 15 years, Bærum expects approx. 30 000 new inhabitants. Bærum is one of the fastest growing municipalities in Norway. The Municipal master plan describes the municipal strategy for urban development: Bærum wants urban development at the transport hubs. By densifying the transport hubs, they create a customer base for local cafés, shops, cultural activities, schools, public services and public transport. The master plan for Fornebu and all the developers, the ZEB

part of the publicly financed project 'Station Areas as A Testbed' which was funded by the Ministry of Environment, Finnish Transport Agency, Smart & Clean Foundation, Helsinki Region Environmental Services Authority HSY, Land Use, Housing and Transport LHT Network and by The Finnish Innovation Fund Sitra and which was implemented by the

cities of Helsinki, Espoo, Vantaa, Tampere, Lempäälä and Lahti, and by the VR Group (Finnish Railways), Helsinki Region Transport and Business Finland.

AROUND 50 SOLUTIONS OR SERVICES TOOK PART IN SMART STATIONS 2018

Services supporting the mobility and trip chains:

- Cyclos (bicycle parking)
- BikeBox (bicycle parking)
- PedalSlot (bicycle parking)
- e-city bike consortium (Memtech Europe Oy (store))
- Freebike.fi (product development)
- TaivalTech Oy and Pelbikes Oy (city bikes)
- Yeply (mobile bike repair)
- 24Rent (car rental service)
- OP Kulku (car sharing)

Sharing and circular economy related services:

- Liiteri consortium: Liiteri/CoReorient
- Shareit Blox Car – a car sharing service
- Witrafi and Rent-a-Park – a peer-to-peer parking service
- Rollock – smart lock systems

Climate-smart consumer products and food:

- EcoChef / Ilmastokokki (cricket bread, i.e. bread made from crushed crickets)
- GlobeHope (products from recycled materials)
- Organic shop Ruohonjuuri



Low-Carbon District (LCD) Concept

As a part of the SMART-MR project, a concept for Low-Carbon Station Areas in the Helsinki region has been developed for the basis of workshop round table discussions. In the future, the concept will help cities to develop low-carbon areas both in existing urban structure as well as in the planning of new station communities. The concept will set targets for low-carbon station areas and compile measures which can be used for reaching the targets. It includes around 60 criteria which were analysed in SMART-MR Workshop 5, Shaping Low-Carbon Areas.



Group work during the SMART-MR workshop in Helsinki. Photo: Janez Nared

In the Low-Carbon District concept, first there were three perspectives of low-carbon station areas: housing and living, mobility, and businesses and services, and four cross-cutting themes: climate change mitigation, resilience, circular economy and social sustainability. After discussions it was clear that there is a need for forth perspective: land use.

Land use principles which guide land use efficiency and infilling of urban structure within station areas are derived from SMART-MR WS4 Transit oriented development. The principles were developed further to include low-carbon perspectives and goals.

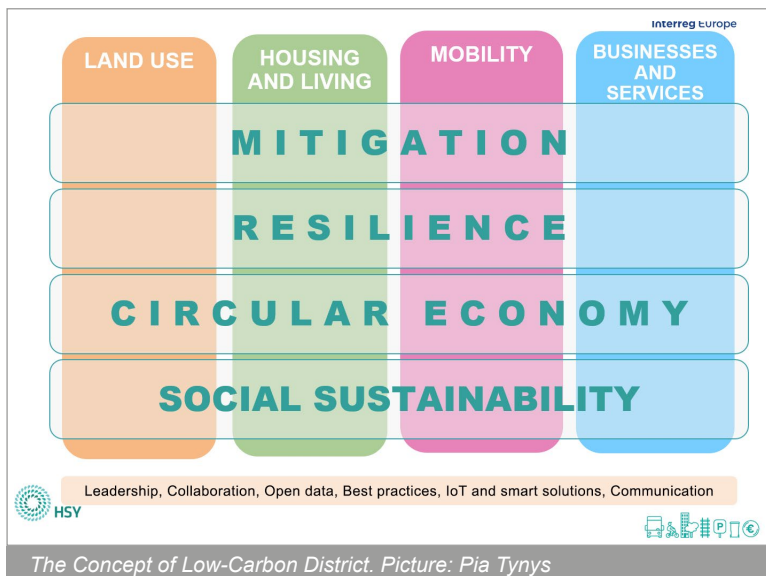
Low-carbon housing requires zero energy building in new building stock, retrofitting in existing stock and renewables as an energy source. In transport planning, low-carbon planning principles consist of supporting walkability, bikeability and interchanges in trip chains, but also setting out constraints or strategic principles for parking and private car use.



Discussion on Low-Carbon District concept. Photo: Janez Nared

A circular economy and resource efficiency will be vital parts of a carbon-neutral society and saving raw materials. Also, a livable community will make a sharing economy possible, with the assistance of digitalisation. Developing a low-carbon community and social sustainability is an important part of the decarbonisation of society, while it still needs both raised awareness and assistance in behavioural changes.

An adequate service level in transportation nodes will serve both interchange passengers and local residents giving more attractiveness to rail transportation. Investment in low-carbon urban infrastructure is an important method facilitating the transition to a low-carbon society in every sector.



and the Futurebuilt programme together with SmartCity Bærum provides for a desirable development.

In 2014, the planning authority of Bærum received the European spatial planning prize. The area was picked out for several reasons. The jury was particularly impressed by the way in which a wide range of issues associated with energy supply and consumption, efforts to minimise carbon dioxide emissions, and measures for handling pollution and noise, are being implemented in parallel with a broadly based strategy for safeguarding and strengthening the biological diversity and landscape qualities of the area. The project demonstrates, in an exceptional manner, how long-term spatial planning can facilitate a holistic approach to harmonising a very complex range of environmental issues in a coordinated way to allow for a high intensity of land use for residential and commercial purposes.

Good practice in Gothenburg: Gothenburg-Borås



Gothenburg-Borås is one of Sweden's largest commuting areas and one of five transport corridors in the Structural Illustration for the Gothenburg region. Together, the municipalities, the Gothenburg Region Association of Local Authorities (GR) and the Borås region have decided upon a common vision for Gothenburg-Borås 2035 and the development of a sustainable regional structure.

Main authorities and stakeholders involved:

GR and the Borås region together with the municipalities of Gothenburg, Mölndal, Härryda, Bollebygd, Mark and Borås. Joint work is carried out in close collaboration with Region Västra Götaland and Swedavia (The Airport Administration).

www.grkom.se/goteborg-boras

Why is the practice considered as 'good'?

Gothenburg-Borås is an example of implementing community planning across municipal borders in line with the Structural Illustration of the Gothenburg region.

The potential for strong social development and growth is great if it is planned jointly. The cooperation enables a common holistic view of the future development. Cooperation between municipalities, GR and Borås region consists of a collaborative group for community planning to enable the participants to overcome administrative boundaries.

Good practice in Helsinki: Detail plan of Honkasuo area, Helsinki



In the planning and construction of the Honkasuo area, the emphasis is on ecologically sustainable and climate-smart construction. The ecological sustainability of construction projects and housing is addressed in many ways, throughout the lifecycle of buildings. The detailed plan contains provisions on low-energy construction and renewable energy utilisation. All the houses in the area are built of wood. Storm water is detained by natural methods and the construction of additional excavation and land masses are used in construction areas. The area is situated near two railroad stations and needs for mobility are reduced by offering services and communal spaces for remote work, social needs and a sharing economy. A school, kindergarten and playground are within walking distance. Good facilities are provided for biking: an optimal network and good parking solutions in buildings. There are also possibilities for local urban farming.



Main authorities and stakeholders involved:

The city of Helsinki, building companies, investors.

<https://en.uuttahelsinki.fi/honkasuo>

Why is the practice considered as 'good'?

There is an ambitious attempt to develop a new low-carbon area with low-energy buildings, on-site renewables and wood as a construction material. The area offers good connections with public transportation and for walking and biking. There are spaces for the use of community to reduce mobility needs.

Good practice in Budapest: Liget Budapest project (City Park Budapest)



Budapest's Városliget is to be renewed – the Liget Budapest Project Városliget (City Park), which was one of the world's first public parks, is the pride of Budapest.

Summary of Workshop Results

The focal observation of the workshop discussions was that it is vital to support the change in people's behaviour towards driving cars and travelling by train. Moreover, the reduction of the necessity to move about should be striven for. The station area provides a possibility for this by centralising housing, services and the opportunity for low-carbon mobility. It calls for a comprehensive rail network and efficient feeder traffic.

on mobility, the focus was set on the promotion of walking and cycling, on trip chains and car parking. Direct, unobstructed and barrier free connections to the station areas were considered focal from the point of view of walking and cycling. In addition to these, the cities should invest in safe bicycle parking solutions closest to the stations so that people can easily use bicycles instead of cars in feeder traffic. The winter season in Northern Europe was identified as one challenge for cycling and



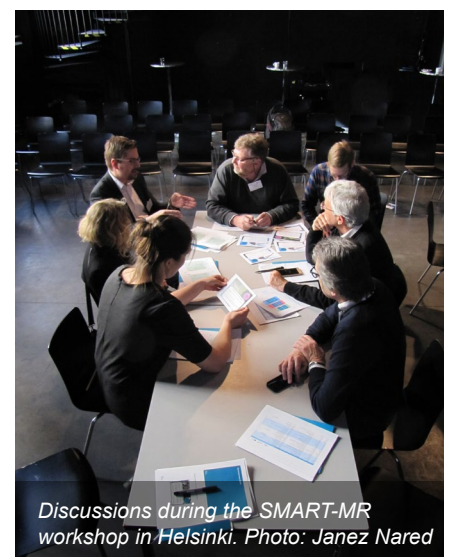
Working groups. Photo: Nuppu Hepo-oja

The LOAD (Liveability Oriented Area Development) concept, which was developed in the 4th SMART-MR Workshop in Gothenburg from the perspective of efficient land use and land use mix in station areas, was recommended to be applied both for pre-existing station areas when complementing the urban structures and for new station areas when planning land use. According to this concept, within a 500 metre radius from the station, land use should be efficient, especially in larger urban areas > 1.0 area floor space index in larger urban areas, > 0.5 area floor space index in small urban areas. The dispersion development, which is typical for urban areas, can be prevented by locating new constructions near the rail traffic corridors.

Housing should also be mixed; i.e. the station areas should provide different types of housing supply for different needs. It is also important to increase affordable housing near the stations.

Discussions on topics which concentrated

the heat during the summer months in Southern Europe. To locate the city bikes at the stations could offer an option for the use of one's own bicycle and this concept could also be carried out using electric bicycles.



Discussions during the SMART-MR workshop in Helsinki. Photo: Janez Nared



Car parking aroused quite a lot discussion during the workshop. As a rule, it was stated that Park & Ride lots for cars should be reduced in the vicinity of the station and rather be located further from them, especially at stations which are near the city centres. The role of feed traffic and development of trip chains were considered more important; i.e. measures being the reduction of the resistance to changing travel modes, good information on changing travel modes, optimal placing of stops and services to provide added value for trip chains at the stations. In this context, the public sector was considered to have a key role in encouraging and facilitating companies to locate themselves at the stations and induce new types of business operations. New inducements could be developed for socially responsible companies producing low-carbon solutions. New business operation models may result from new types of public-private partnerships.

The development of public space was seen as one of the key measures for improving the station areas. Cities hold a key role also here. Especially, increasing of smart and energy-efficient lighting and enhancing of under-/overpasses are the most focal measures to be taken. Upgrading of public space also improves the experienced feeling of safety at the stations.

As a matter of fact, safety is one of the key components from the point of the station areas' usability. Here and there, the station areas have been seen as unsafe places. Increasing the resident number as well as the user number will improve the social control and feeling of safety. Locating the services centrally on the ground floors at the station and nearby will also increase the social activities and enhance safety. The aspect of female safety and the need to improve the feeling of safety, especially outside the commuting hours, aroused discussions.

The capital's most frequented park has earned itself recognition not only by virtue of its age and for being among the first of such facilities, but also through its unique historical heritage and a clear mission from its very conception that makes it unrivalled in Europe. The Liget is an urban public park for relaxation, a green oasis, and a home to institutions of culture, entertainment and recreation. This place was envisioned as a venue for the Museum of Fine Arts, the Hungarian Transport Museum, the Museum of Hungarian Agriculture and the Múcsarnok (Kunsthalle). Other establishments built here include the Budapest Zoo, the ice rink and Széchenyi Thermal Baths. These popular institutions attract millions of visitors per year. The park also offers pleasant and tranquil leisure time for its visitors in the middle of the capital city. With most of its institutions being in need of renovation, Városliget has reached a condition in the past few decades that make it unfit to live up to its calling. The park cannot fulfil its true mission. It has grown drab, its vegetation is well past its prime, its facilities and equipment are outdated and its air is being polluted by tens of thousands of vehicles on a daily basis. The comprehensive renewal of Városliget could not be delayed any further. Such rehabilitation can only be implemented at a 21st century standard, while fully respecting the park's 150-year-old heritage. The institutions in Városliget must be renovated, while the park's green area must be rehabilitated and enlarged. As a result, by 2020 Városliget will be more liveable, modern and much greener than it is now, enriched with attractive institutions, making it worthy of its old fame.

Main authorities and stakeholders involved:

Városliget Ltd, different institutions, museums affected, Hungarian State, Municipality of the City of Budapest, XIV. district municipality, BKK.

<http://ligetbudapest.hu/setLang/en>

Why is the practice considered as 'good'?

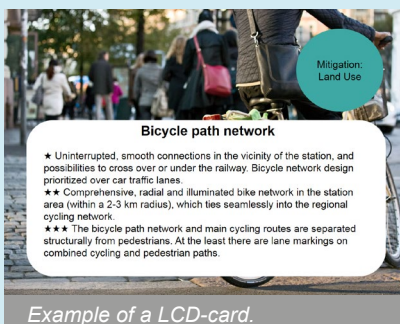
This project is unique in Budapest for its complex measures to achieve less pollution. Car usage will be almost completely eliminated within the whole project area, only deliveries and people with reduced mobility will be allowed in certain places. The park will be accessible by electric public transport, bicycle and by foot. Arriving visitors can park their vehicles in the newly-built underground garages at the periphery. Using green walls and green roofs, less asphalt, less concrete and installing more plants and trees, will reduce the urban heat effect. No sources of air pollution will be generated in connection with the heat and power supply of the buildings. A heat pump for each building is used to provide a bigger renewable share of energy during heat and energy supply.

LCD criteria cards as a tool and basis for the workshop discussions

The extensive criteria, which have been worked on beforehand, suit as the basis for the discussions. The participants criticised to some extent that the criteria were steering the discussion towards a certain direction and that a part of the criteria was not suited for implementation in the public sector. On

the other hand, they were commended for their comprehensiveness and for including circular economy. The LCD criteria cards were seen as a possible interactive tool in the planning phase.

The results gained from the workshop will be taken into consideration in the further development of the criteria for Low-Carbon District. The criteria for shaping a low-carbon area will be completed by the end of 2018.



Example of a LCD-card.

Good practice in Rome CAPTURE - CArs to Public Transport in the URban Environment, Rome Celio Implementation



The CAPTURE test site in Rome is the Celio area, adjacent to the Colosseum, in the historic centre. The main objectives were to reduce car traffic by increasing the use of public transport and increase the environmental quality through physical measures. Physical measures are not easy to introduce. Small-scale, low-visibility cheap solutions were found to be the most readily implemented. However, these do not achieve large-scale change unless introduced as part of an overall vision and strategy.

Main authorities and stakeholders involved:

The main actor is the Commissioner for Mobility and Transport Policies in Rome, who was also the Deputy Mayor of the City. Sapienza University designed the scheme of the measures in Rome Celio. The Municipality of Rome and the Department VII of Mobility and Transport Policies are the actors that appraise, approve and finance mobility and transport projects.

<https://romamobilita.it/it>

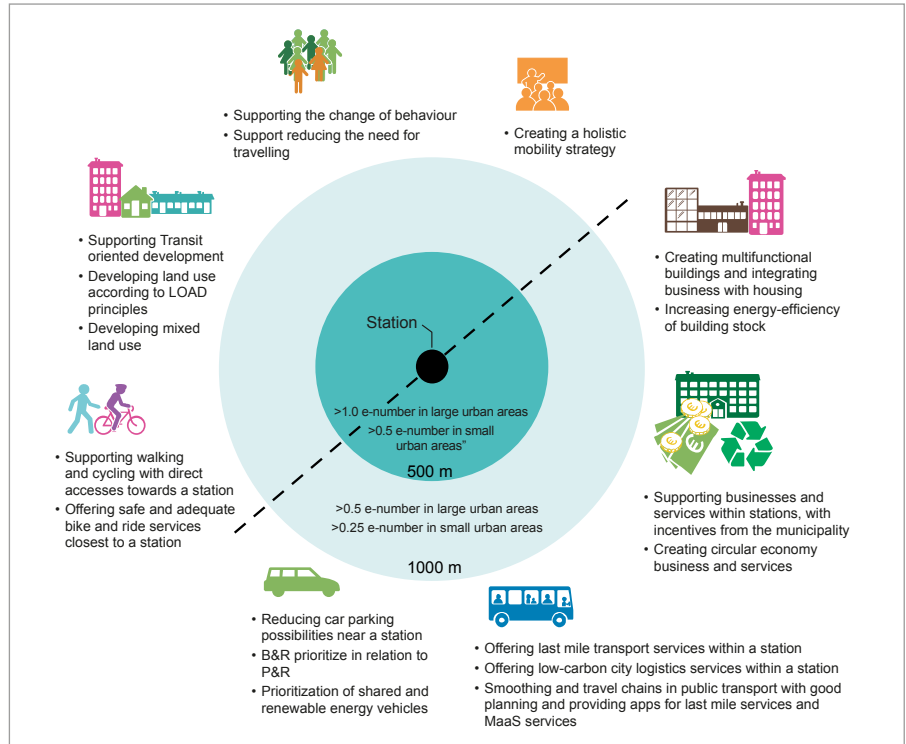


Why is the practice considered as 'good'?

It was the first implementation of a package of measures to reduce car traffic in Rome. There were several important positive results:

- Reduction of traffic by about 5 000 vehicles/day in 1998 (about 30%).
- A large decrease in maximum speed, from 77 km/h to 25 km/h.
- About modal split, before the project 65% of commuters used to use private cars to go Celio, while after it only 55% did, a reduction of 10%. This reduction can

Policy Recommendations



The station areas were recognized as potential starting points for low-carbon society as there are possibilities for low-carbon modes of transportation and for centralization of housing and services in order to reduce the need for travelling. The holistic regional plan combines land use, housing and transportation and can promote the transit oriented development in metropolitan regions.

As climate change mitigation in transport sector is widely recognized as an urgent action, the focus in low-carbon stations is to develop walking and cycling possibilities, public transport and smooth trip chains. In station areas cars are not considered necessary and the brave proposal in the workshop was to move the Park and Ride areas further away

from the station and replace them with safe and weather-proof Bike and Ride areas.

Main hinders to use the stations should be analyzed. The feeling of safety can be improved in many ways with lighting and increasing population and users in the area. Increasing housing and inhabitants improve the ability of services to enter the region and to increase their profitability. Circular economy was considered a potential way to develop businesses and services in these transport nodes. The role of public sector was seen in encouraging and facilitating businesses, also private sector and citizens' initiatives. Social sustainability is an important theme in developing future cities and in livable oriented station community it can be improved, also with effort of public actors.



Discussions in the workshop, Korjaamo, Helsinki 2018. Photo: Nuppu Hepo-oja

Site Visit: Smart Kalasatama

During the 5th SMART-MR workshop in Helsinki, the participants took part in a site visit to Smart Kalasatama, a model for Helsinki's smart city development. The site visit was organised in cooperation with the City of Helsinki and Forum Virium.

Kalasatama, a brownfield district in Helsinki, is a new neighbourhood that also works as an innovation platform. The area is developed flexibly and through piloting, in close cooperation with companies, residents, city officials and researchers. The aim is to co-create smart and clean urban infrastructure and services. The Kalasatama district will offer homes for approximately 25 000 residents and jobs for 10 000 people by 2035. Currently, there are 3 000 people living in the area. Kalasatama will be one of the fastest growing areas in Helsinki in the coming years.

"The vision of Kalasatama is that smart services save one hour of a citizen's time every day."

The district combines public services, office buildings, business premises and mixed housing. The culture centres Suvilahti and Teurastamo, focusing on food culture, host wide variety of events. The combination of versatile activities and efficient land use aims at an active and vibrant area from morning till evening. A distinctive feature is the centre of Kalasatama, which is being built around the subway station. It consists of a shopping centre and eight towers that will be the highest in Helsinki.

The carbon-neutral future of energy services is being built. Sustainable development, energy efficiency and waste re-use are the cornerstones of Kalasatama's development. Helen, ABB and Fingrid built the smart grid in which the user of electricity can also be its producer. The first

estates are already connected to a smart grid, and all the rest to be built will benefit from the grid - enabling real time smart metering, an electric vehicles' network and new storage solutions for electricity. Several solar power plants already exist in the area and the whole district is connected to the district heating and cooling grid.



Introduction to 'Smart Kalasatama' by Maija Bergström, Forum Virium. Photo: Janez Nared



Presenting energy solutions in Kalasatama developed in mySMARTLife -project by Marja Vuorinen, City of Helsinki. Photo: Janez Nared

be attributed to the introduction of paid-parking for non-residents.

- A slight reduction in noise.

Good practice in Barcelona: Application of the first Superblock



The Superblocks project in Barcelona is one of the biggest urban transformations ever planned. They are conceived as units of urban organization. The inner streets of the super-spaces are spaces where the right of passage of vehicles is no longer the main function, but they become space to stay and exchange, space for games, leisure, etc.

The objectives of these Superblocks are to liberate the traffic of passage to certain routes, in order to humanize them and win them for the citizen activity. The Superblocks model organizes the city so that the pedestrian is the one who has the real priority, followed by bicycles and public transport. In September 2016 the first Superblock was implemented in the district of Sant Martí, on the perimeter formed by the streets of Badajoz, Pallars, Llacuna and Tanger.



Basic mobility measures have been applied, with temporary, reversible and fast execution actions that allow us to visualize the new uses that can be achieved. As a result of its implementation, a process of assessment and proposals was launched in the neighbourhood, to promote working together on the necessary adjustments to improve the operation and strengthen its potential. This was implemented through open-discussion sessions (street debates, events at the University Pompeu Fabra...) and a Working Committee was created with the main associations and organisations, which conducted periodic meetings.



Listening to the complaints and proposals and through the work done within the framework of the Working Committee, the

pilot test is now closed: the final mobility scheme was implemented (January 30, 2017) and the actions on the public space to adapt the model to the territory, its inhabitants and their activities have begun.

Main authorities and stakeholders involved:

Barcelona City Council

<http://ajuntament.barcelona.cat/superilles/ca/content/el-poblenou>

Why is the practice considered as 'good'?

The implementation of the Superblock model in Barcelona is summarized in the following four points, with their corresponding application measures:

- Improvement the habitability of public space.
- Advancing towards more sustainable mobility.
- Increase and improvement of urban green and biodiversity.
- promotion of the participation and co-responsibility of the citizens.

Good practice in Porto: Urban requalification of the riverfront - Gaia



This is an important intervention in a historical and most beautiful Gaia area. This is a very busy area and also a touristic place, with several heritage buildings, by the Douro river, where we can have a boat tour with a stunning view to the Porto city. There are also the famous Port wine cellars and a lot of nice restaurants and local commerce.

This is also a difficult area due to the periodic floods that happens every 3 years. There is a lot of traffic that improves the noise, pollution and messy parking. The vehicle counting showed that the private transport is about 90% of the total traffic, either weekend or working days. The quality of life is affected: the street is full of vehicles, the sidewalk is narrow, damaged and with a lot of obstacles, the terraces are small and the pedestrians have no security. So, this is the most beautiful area of the city but unfortunately it does not have the urban quality that we would like.



Building site of REDI shopping mall. Photo: Janez Nared

The first two-way charging point in Finland is installed in Suvilahti as part of the EU funded mySMARTLife project in connection with Helen's solar power plant and electricity storage facility. The V2G (vehicle-to-grid) charging point enables not only charging of an electric vehicle, but also using it as an electricity storage unit and utilising it in the balancing of the electricity system. In the future, the owner of an electric vehicle can utilise the vehicle's battery as an energy storage unit and also take part in the balancing of the electricity market and gain benefits as part of the service.



Liiteri -Tool sharing services. Photo: Mikko Nikkanen

Effective public transport is a key low-carbon solution, and one of the greatest benefits of the district. After opening in 2007, a metro station serves the Kalasatama area. In the 2030s, after construction is completed, some 23 000 passengers daily are estimated to pass through Kalasatama station. Länsimetro, connecting Kalasatama to Helsinki's neighbour city Espoo, was opened on the 18th of November, 2017 providing a metro service to Helsinki city centre every 2.5 minutes in peak hours. With new tramlines and bus routes, Kalasatama will serve as a highly used intersection of public transport in the future. The tramline connection is fast and reliable because it runs on its own fairway and therefore does not get bogged down in traffic jams. An extensive bicycle path network is planned for the area. The main avenues and collector streets will be adorned with bicycle paths, along with waterfront promenades serving cyclists and leisurely strollers.

An old abattoir from the 1930s was re-opened as Teurastamo (eng. abattoir) to residents, tourists and businesses in September, 2012. Currently there are a dozen active businesses operating in the Teurastamo area, ranging from restaurants

to urban events, from a business college to a coffee roastery and from a distillery to a pasta factory. The area's traffic arrangements have also been developed with the aim of minimising the environmental impact of traffic. Parking is a big issue at Teurastamo, as restaurants and shops bring customers that need short-term parking. During the events, the area has to be closed to private cars.

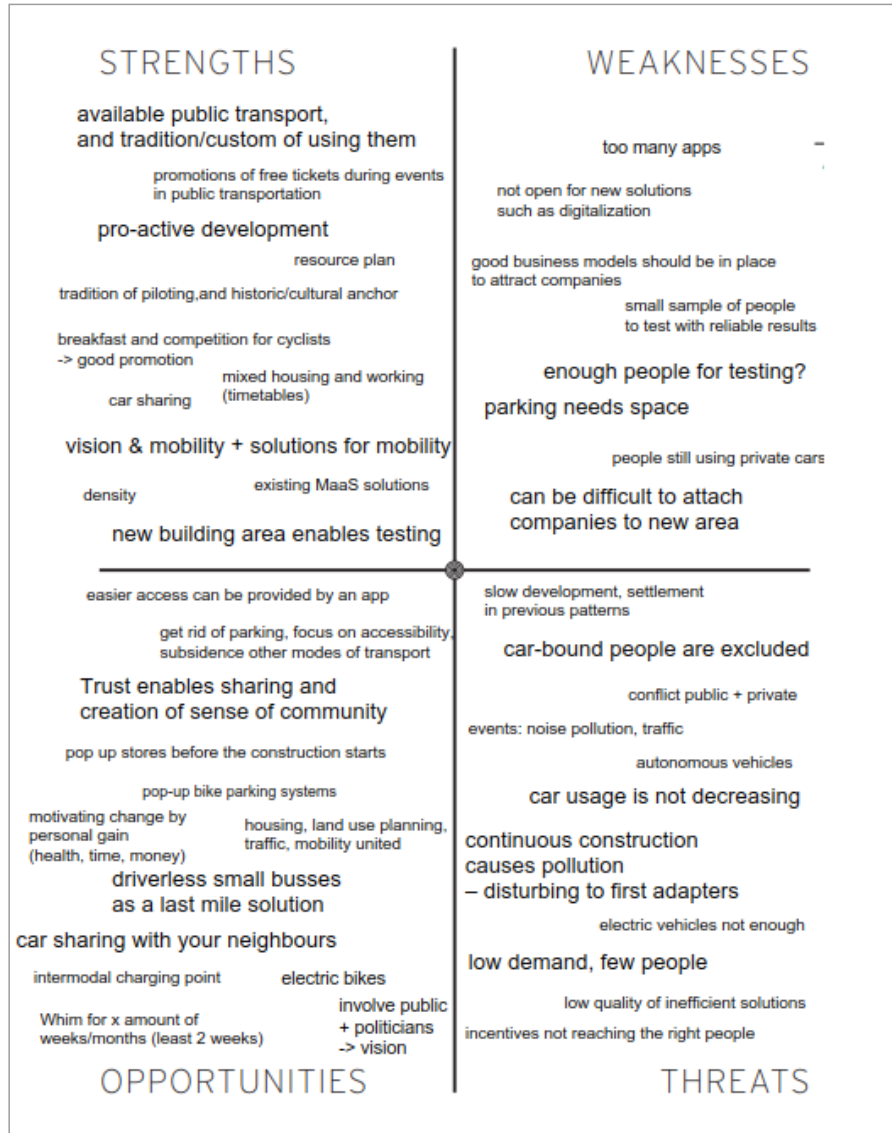
Several sharing economy services have been piloted in Kalasatama, e.g. Rent-a-park service and Flexi Spaces for sharing underused spaces. One can rent tools and home appliances from Liiteri, a smart container located in Teurastamo.



Kalasatama working groups, Teurastamo, Helsinki. Photo: Janez Nared

The participants of the workshop were guided through the Kalasatama area on a walking tour. Different aspects of smart and sustainable solutions were introduced during the walk. At the end of the walk, the participants gathered at Teurastamo to discuss and conclude what they had seen

during the tour. Discussions were held in working groups dealing with urban planning practices, parking, MaaS solutions, sharing transport services, changes in attitudes and test block experiments. The discussions were concluded in the form of a SWOT analysis (see picture).



Results of working groups in Teurastamo, Kalasatama. Photo: Aino Hatakka.



The area of Kalasatama. Photo: City of Helsinki/ Suomen Ilmakuva Oy

For the exploration phase, measures were taken to restrict private road traffic and to promote the use of public transport, which is already mostly efficient. So, only electric public transport circulates, with a reduced velocity. This project had environmental concerns both in the project phase: we raised the street level to the sidewalk level and incorporated local materials, such as granite, thereby reducing the gaseous emissions from cargo transport; the reduction of waterproofed areas in the intervention area; the placement of a double geotextile blanket in the paved area with granite blocks which prevents its degradation by the effect of rainwater or by the effect of the rise of river waters at flood heights; the bet on sowing and planting native species that require less water. We also improved urban furniture, bike parking and photovoltaic street lighting so that we can have more placemaking and less CO2 emissions.

The planning and execution of this project took into account the set of existing and planned plans for this area and their integration in order to enhance the inert advantages to its implementation, namely: regulation of traffic conditioning and parking in the Historic Center; regulation of traffic and loading and unloading operations in the city, creation of a set of peripheral car parks and the re-qualification of the public space of the surrounding area. With this set of measures is intended to significantly reduce emissions of greenhouse gases.

Main authorities and stakeholders involved:

Municipality of Gaia







Why is the practice considered as 'good'?

The implementation of the measures described provides for a significant reduction of greenhouse gas (GHG) emissions and at the same time mitigation of the effects of climate change.

The improvement of the quality of life of the resident and visiting population, through the promotion of the enjoyment of direct contact with extensive green areas, giving priority to soft modes of transport: pedestrian and cyclist, for this purpose were created wide and unobscured areas. Due to its location and visibility, this project will have a high impact at the level of the call to awareness of sustainability.

The present intervention refers to lands in the public domain. However, it is integrated into a set of public and private projects whose sum will bring enormous added value to the sustained development of the City and the Metropolitan Area.



Metropolitan region	Partner
Ljubljana	<p>Research Centre of the Slovenian Academy of Sciences and Arts</p> <p>Regional Development Agency of Ljubljana Urban Region</p> 
Oslo/Akershus	<p>City of Oslo, The Agency of Urban Environment</p> <p>Akershus County Council</p> 
Gothenburg	<p>Göteborg Region Association of Local Authorities</p> 
Helsinki	<p>Helsinki Region Environmental Services Authority</p> 
Budapest	<p>BKK Centre for Budapest Transport</p> 
Rome	<p>Metropolitan City of Capital Rome</p> 
Porto	<p>Porto Metropolitan Area</p> 
Barcelona	<p>Barcelona Metropolitan Area</p> 

Interreg Europe project SMART-MR (Sustainable measures for achieving resilient transportation in metropolitan regions) supports local and regional authorities in eight European metropolitan regions to improve mobility policies. It also aims to provide sustainable measures for achieving resilient low-carbon transportation and mobility in metropolitan regions of Barcelona, Budapest, Göteborg, Helsinki, Ljubljana, Oslo/Akershus, Porto and Rome. Project will be running from April 2016 until March 2021 and coordinated by Anton Melik Geographical Institute of the Research Centre of the Slovenian Academy of Sciences and Arts and funded by European Regional Development Fund.

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