GreenSAM
Green Silver Age Mobility

30.09.2021

Co-designed age-friendly public spaces and innovative technological solutions in urban mobility in Riga

Evaluation Report and Impact Assessment

Interreg
Baltic Sea Region
EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND

Situation before the GreenSAM project

Situation before the GreenSAM project in Riga city was very similar to other Eastern European cities where the engagement of the silver-age users' group into the mobility planning was not a common activity and seniors mostly were "left behind" the technologies and involvement process.

Riga is the largest city in the Baltic States, with a population of 639,600 where 168,265 are over 60 years old and it makes 26% of the total population of the city. It`s almost one third of the population and has significant impact on the mobility patterns.

In Riga city there is no senior citizens' council or a board, or a platform to meet the users' group, discuss and co-create age-friendly mobility solutions. Before the project there were 9 stand-alone seniors' associations, mostly taking care of the social and economic issues related to the silver agers but not their involvement into the active mobility or urban planning activities. These 9 seniors' associations have never discussed together about senior's mobility needs and possible solutions to improve green mobility in the city. Seniors have never been asked about their mobility needs and patterns, never practiced how to use technologies to improve their mobility in the city and never been particularly involved into the urban planning. Research shows that a large proportion of seniors in Latvia face poverty, loneliness and insufficient integration, therefore existing programmes and associations are more focused on these challenges (Source: https://bit.ly/2TwxT0N).

Objectives of the GreenSAM project in Riga

In order to increase the knowledge of public authorities about senior citizen's mobility needs, the Mobility Lab co-creation sessions were organized in close collaboration with 9 seniors' associations and over 30 specialists from different municipal institutions to kick-off co-creation activities of the silver-age green mobility solutions and test Mobility Lab concept.

The aim of the evaluation is to assess the Mobility Lab concept and its activities according to the project goals:

1. How to improve decision makers' knowledge about the needs of senior citizens and decision-making processes of local public authorities.
2. How to improve seniors' knowledge about green mobility solutions and foster behavioural change towards green mobility.

The concept of the Mobility Lab

The Mobility Lab is an interdisciplinary collaboration platform to co-design and test innovative planning and technological solutions in urban mobility and public transport aimed to improve the green mobility offer for seniors, thus ensuring that seniors are not "left behind" with technological progress. In practice the Mobility Lab, in close collaboration with the target group (seniors), has introduced innovative approaches to addressing the core mobility needs of this target group in the cities (municipalities), ensuring that mobility in physical, technological, or virtual environments become available, accessible, acceptable, affordable, more efficient, healthier, smarter and thus – more sustainable.

The Mobility Lab concept is based on three pillars: **research, collaboration, communication.**

The Mobility Lab aimed to improve the green mobility offer in the cities (municipalities) of the Baltic Sea Region (BSR) by targeting one specific users' group – senior citizens, and by seeking solutions to provide this target group with broader access to contemporary and environmentally friendly urban transport, whilst also strengthening the knowledge and building capacities of the public sector in implementing the green mobility solutions in the BSR cities. The following sub-objectives of the Mobility Lab were:

- in close collaboration with the target group, develop proposals for green mobility solutions suitable for seniors;
- adapt the urban public space to the seniors' needs and, in particular, better facilitate different green mobility modes from the target groups' perspective;
- increase the use of green mobility services by seniors;
- enhance seniors' awareness of green mobility and improve seniors' abilities to use contemporary green mobility services/technologies;
- improve the urban environment and reduce noise, CO_2, and other greenhouse gas emissions originating from urban transport.

Activities

Main activities of the GreenSAM pilot were to elaborate the Mobility Lab concept and test it on real activities in Riga city. The below outlined activities were implemented during the time period starting from November 2019 until July 2021.

During the Mobility Lab a survey on senior mobility and use of technologies was organized, as well as the training for senior citizens to improve their digital skills. All together six Mobility Lab co-creation sessions were organized.

First Mobility Lab event

The first Mobility Lab focused on exploring the senior profile, users' needs and define main challenges and conceptual solutions.

The first Mobility Lab session aimed to promote the green silver-age mobility in Riga was organized on November 22, 2019. The city of Riga organized the first co-creation session in close collaboration with urban planning students from the University of Latvia, professionals, 9 representatives from active senior associations and municipal specialists/civil servants.

During Mobility Lab process, students analysed the mobility experience of more than 30 randomly selected seniors, interviewing them and/or accompanying them on their daily journeys across the city. It resulted in 3 typical for Riga seniors' profiles, that were developed by students:

- **Ilga**, a 78 years-old retired, non-working woman,
- **Victor**, a 61-year-old visually impaired man,
- **Igor**, a 65 years-old man, a hard-working retiree.

Such assignment enabled students to assess urban mobility from the viewpoint of seniors, describe and analyse their unique mobility experiences, challenges and obstacles. During the first Mobility Lab session,

participants were divided into interdisciplinary groups consisting of students, experts, seniors, and civil servants. Each group worked on the following 4-step assessment:

- **Step 1** – "Mapping the User Experience"
- **Step 2** – "Finding the Critical Point"
- **Step 3** – "Brainstorm on Potential Solutions"
- **Step 4** – "Ease of Implementation: Impact Assessment of Identified Solutions"

Each group prepared user experience maps to analyse the seniors' experience of using one of the greenest public transport modes of the city – the tram – nearby the seniors' most frequent destination in the city – Riga Central Market.

Key identified concerns were the following:

- public transport timetables are not adapted for visually impaired people,
- there is no staging platform tailored to seniors' needs; existing platforms are too high,
- additional risks are caused by public transport stopping at the platform too far from it – creating a dangerous gap,
- seniors do not always have free seats at the public transport,
- sometimes it is difficult to get in/get off the tram due to overcrowded carriages,
- infrastructure near the tram stops is not always well-developed, pedestrian crossings are missing, it is dangerous to cross the rails due to uneven surface levels – seniors can easily get trapped,
- the best-known and the safest-chosen route is not always the shortest one in terms of time and distance.

In the next step, each group defined **critical points**, e.g., – inappropriate tram stops – and defining potential solutions, such as:

- re-design public transport timetables matching the sight of seniors – larger displays, bigger letters and numbers, etc.,
- provide seniors with the opportunity to get familiar with the mobile phone apps, making it easier for them to find out the exact time of public transport departures/arrivals,
- improve the lighting at public transport stops,
- prepare printed public transport schedules and distribute them to the seniors (by the municipality), and many others.

Finally, each group analysed identified solutions, applying the **quadralup matrix**: quick wins, time-consuming tasks, temporary solutions, ungrateful tasks. The results of the group work were presented to the audience, peer-reviewed, discussed, and evaluated.

Thus, the participants of the first Mobility Lab session defined critical points and co-designed initial solutions on how to adapt urban space to the seniors' needs and make it more comfortable for the target group. Also, the first solutions how to better facilitate different green mobility modes from the target groups' perspective, were identified.

At the end of the first Mobility Lab session, seniors expressed their sincere gratitude for being invited to the event, for being heard and actively involved. Seniors also affirmed their willingness to collaborate during the next Mobility Lab sessions.

• Survey on senior mobility and technologies

As part of the Mobility Lab process, the city of Riga surveyed the senior residents (age of 65 +) of the Riga municipality. Among others, the survey showed that almost two-thirds of our seniors (64.2%) own smartphones, however, most of them lack information about contemporary digital applications aimed to improve their mobility, as well as seniors' skills to use smartphones, are not sufficient enough to discover such tools themselves and independently acquire practice to use them. The following main conclusions were made:

1. 85% of seniors, when traveling long distances, most often choose public transport, but if the distance is short, they walk. Some seniors use a car. Bikes are used very little.
2. Most often used platform for public transportation mobility opportunities is the "Rigas Satiksme" application and Google maps.
3. Car-sharing services are not used because seniors are not aware of this possibility.
4. 43% of the respondent's desire to learn the possibilities regarding mobility offered by a smartphone application.
5. Seniors lack information about mobile applications that could improve the mobility of seniors.
6. Most seniors indicated that they want to learn applications that provide information about public transport timetables "Rigas Satiksme", communication possibilities "WhatsApp", "Skype" and other digital mobility opportunities.

Therefore, as part of the Mobility Lab activities, the knowledge, and skills to use environmentally friendly urban transport modes and services of the senior residents were continuously improved. They were introduced to the public transportation application "Rigas Satiksme" and other apps were seniors introduced with solutions that improved them to move around the city.

• Training for senior citizens to improve their digital skills

On February 13, 2020, in cooperation with the largest public transport operator RP SIA "Rīgas satiksme" and largest telecommunication operator SIA "Latvijas Mobilais Telefons" an informative and educational event was organized to improve the digital skills of seniors.

- Seniors were introduced to the results of the survey "Seniors' travel habits and use of technology in the city of Riga";
- Although most of the seniors came to the event with their own smart devices, it was concluded that the level of skills in using smartphones of the senior-agers was very different. Seniors were trained to connect to Wi-Fi and use of the mobility aps, providing the opportunity to use this knowledge after training session;
- Seniors were informed about the senior friendly activities in public transport company RP SIA "Rīgas Satiksme";
- The representative of RP SIA "Rīgas Satiksme" demonstrated a video, which clearly explained how to use the website of the public transport provider of the city of Riga. Seniors were asked to create their own search for the best trip;
- Seniors were individually consulted and assisted, because senior's knowledge and performance were very different;
- Representatives of SIA "Latvijas Mobilais Telefons" interactively demonstrated the possibility to use the smartphone in "easy mode" where interface is much better for them;

- Trainings were focused on applications that can facilitate navigation in the city of Riga, such as customizing the Google map to their needs, Mobilly app, etc;
- Seniors who attended the training were very interested, they highly valued the training and acknowledged that they obtained new practical skills and motivation to explore further the world of technologies. Seniors admitted that it is necessary to continue exploring the possibilities offered by smartphones in relation to green urban mobility.

In the beginning of 2020, due to the Covid-19 restrictions, the City of Riga adapted Mobility Lab events to the requirements of social distancing. Content, approach, and working methods of the Mobility Lab events were adjusted to the specifics of online work and Covid-19 requirements. As the whole Mobility Lab concept has been developed and implemented in close collaboration with local universities where dedicated technological solutions for online learning and online group work were already in place, the influence of the Covid-19 outbreak was comparatively insufficient.

• Second Mobility Lab event

The second Mobility Lab focused on development of proposals for age-friendly mobility hot spots.

To take forward the findings of the first Mobility Lab as well as to further promote the development of a sustainable and climate-friendly urban transport system and mobility in the City of Riga, on the 15th of May 2020 the second Mobility Lab event was held. An online seminar presented to wider audience the proposals for adapting mobility infrastructure and the surrounding urban public spaces to the specific needs of seniors' user group, developed by students of the Riga Technical University's Faculty of Architecture, as part of their urban design studies course.

From February until April 2020 students observed, assessed, and analysed the mobility of seniors in the urban environment, in particular, the mobility of such vulnerable groups as the seniors with visual and/or mobility impairments and other special needs.

The students identified eight mobility hot-spots within the administrative territory of the City of Riga and developed proposals for improvement of urban public space around these mobility hot-spots. The proposals focus on solutions how to make them accessible, safe, and convenient for seniors, taking into consideration their specific needs. During the seminar, students presented their proposals to urban planning and mobility planning experts, municipal specialists, and seniors. The audience of the seminar evaluated these proposals from different perspectives and discussions were held assessing the relevance and suitability of developed proposals to the needs of the seniors' user group.

One of the results of the second Mobility Lab was jointly elaborated guidelines for the planning of public space around green mobility hot-spots to make them senior-friendly and thus to ensure that seniors feel more confident with green mobility modes in the urban environment of Riga city.

• Third Mobility Lab event

The third Mobility Lab addressed the silver-age mobility challenges during and after the Covid-19 emergency.

Being aware of the fact that the silver-age residents, in a longer run than other social groups, are expected to face significant social distancing restrictions and limited access to goods and services including transportation, on the 29th of May 2020, the City of Riga organized the third Mobility Lab event **"Silver-age Mobility: Challenges During and After the Covid-19 Emergency".**

This event was organized in collaboration with students and the teaching staff of the University of Latvia Master's study programme in Spatial Development Planning, urban planning, and social anthropology experts, municipal specialists, and seniors. The third Mobility Lab event was held as an online co-creation workshop that looked at practical solutions to improve senior mobility and reduce their social exclusion.

Given that the Covid-19 outbreak has significantly strengthened the importance of the social dimension in the daily lives of seniors, respecting the new situation, senior mobility in this co-creation workshop was viewed through three main pillars:

- Information design,
- Safe commuting in the urban environment,
- Access to goods and services.

Three different prototypes of seniors were considered, for whom the constraints of the Covid-19 outbreak caused additional urban mobility constraints. The following challenges of senior mobility identified by students were considered in the Mobility Lab's co-creation workshop:

- Availability of medical services during the Covid-19 outbreak,
- Mobility of visually impaired seniors in the vicinity of their place of residence,
- Lack of socialization for seniors due to Covid-19 constraints.

Silver agers from the Riga Active Seniors Alliance "RASA" participated in the online co-creation workshop, providing their assessment of the problem solutions developed by three groups of students as well as recommendations for improving the situation. Seniors expressed specific needs that would need to meet so that seniors could obtain information in an understandable, easy-to-comprehend way, as well as be able to travel on a daily basis, buy everyday necessities and receive public services on their own without significant burdens. The groups of students, using the "Storyboard" method, presented proposals for the improvement of public space and information flow, which could be used to improve seniors' mobility during the Covid-19 outbreak as well as in the future regardless of the Covid-19 situation.

After each of these Mobility Lab sessions, seniors expressed their sincere gratitude for being invited to these events, for being heard and actively involved.

• Seminar for municipal employees to improve their capacity and knowledge on the needs of senior citizens

In order to promote the capacity and knowledge of municipal employees, on 1st of June 2020 an informative and educational seminar was organized. The participants of the seminar were introduced to the specific needs of seniors, discussed the guidelines and discussed the possibilities of improving the work of the municipality to promote the development of senior-friendly infrastructure.

A positive assessment and vision of further cooperation was received from the municipal employees to promote universal and senior friendly design in the City of Riga.

This co-creation with the municipal board led to the experimental pilot in Čaka and Bruņinieku street where universal senior friendly street design was implemented in more than 4 km long distance – totally new living street concept with new separated bike lines, public transportation stops, one level pedestrian pavements and crossings, new senior friendly amenities and signs for visually impaired. This experiment downgraded traffic intensity more than 25% and improved air quality and safety on the street. (Source: https://eng.lsm.lv/article/economy/transport/bicycle-lane-experiment-in-riga-center-launched.a381599/)

- ## Next Mobility Lab events

The next three Mobility Lab events focused on innovative technological solutions in urban mobility.

Three consecutive Mobility Lab sessions were conducted in May – June 2021 in the framework of the study assessing the potential of blockchain technology to improve the sustainability of public transport system in the City of Riga, and proposing different alternative scenarios for blockchain applications that might facilitate and support sustainable development urban mobility.

Decentralized blockchain technology offers collaboration platforms between different transport and mobility service providers in both public and private sectors. It also provides opportunities for new high-quality transport and mobility system services for different groups in society.

Within the research, a conceptual senior-friendly solution of blockchain technology for sustainable public transport and shared mobility payment system of the city of Riga has been elaborated. Innovative research shows the possibilities of using senior-friendly blockchain technology for the public transport and mobility system to promote the development of smart, multimodal, and sustainable mobility in the City of Riga.

In the GreenSAM project the City of Riga undertook a feasibility study on the potential of blockchain technology to support development of the urban transportation system. This study assessed and analysed over 10 blockchain-based solutions in urban mobility successfully deployed in the EU and non-EU countries. It also reviewed the national and EU regulatory framework related to the implementation of the blockchain technology and identified the main strengths and weaknesses of this technology, as well as the potential obstacles to the implementation of blockchain technology solutions in Riga City Municipality.

Further, as part of the Mobility Lab activities in collaboration with relevant mobility stakeholders, Riga Technical University researchers, students, NGOs and active silver-age residents, Riga is continuing to develop a prototype of a blockchain-driven “Mobility as a Service” (MaaS) solution – an integrated platform for planning and paying for journeys, facilitating green, sustainable, multimodal travel and increasing public-transit ridership. Blockchain technology provides an opportunity to automate collaboration among multiple mobility stakeholders currently not collaborating and not sharing data with each other, in order to jointly develop integrated, sustainable and digitally open mobility services. Blockchain technology would allow Riga City Municipality to offer commuters an integrated platform for planning and paying for journeys, facilitating multimodal travel and increasing public-transit ridership.

Mobility as a Service (MaaS) is a relatively new transit concept allowing public transport options (buses, trams, trains, ferries), carpooling, car and bicycle sharing, and other modes of transport to coexist on a single platform.

Blockchain-driven MaaS is a viable alternative to private car use, offering a more affordable, convenient and sustainable alternative while at the same time reducing congestion, lowering costs of service, increasing transport coverage in underserved areas and improving mobility access.

The undertaken study clearly indicated that an integrated, blockchain-driven Mobility-as-a-Service (MaaS) solution, which is being prototyped in Riga, can have a significant positive impact on greener, more resilient, and more people-friendly cities. Innovative, inter-institutional business models for mobility service delivery can make public transport more accessible and affordable, especially for middle-aged people, significantly reducing the use of traditional private vehicles and greenhouse gas emissions.

The implementation of the GreenSAM project in the city of Riga confirmed that the sustainability of the urban transport system depends on innovation, an integrated and participatory planning approach, a set of balanced measures and, most importantly, on the attitude of each city resident towards the environment and climate.

Results of the Mobility Lab activities

- Developed the concept (prototype) of the Mobility Lab, which will ensure the organization of similar co-creation events in the future as well in other cities.
- Established an interdisciplinary Mobility Lab team with 9 seniors' associations representatives and over 30 specialists.
- Developed guidelines for the adaptation of public space to the needs of senior mobility, which will assist decision-making of local government institutions.
- Implemented first experimental pilot in Čaka and Bruņinieku street where universal senior friendly street design was integrated in more than 4 km long distance.
- Organized eight Mobility Lab sessions in real situations with real use case and people's experiences, which significantly improved knowledge of municipal employees and decision making and seniors knowledges and skills.
- Conducted a survey of the user group (i.e., residents of the city of Riga over the age of 60) on the mobility habits and needs of seniors to achieve the project goals was.
- Improved municipal decision-making and knowledge about green mobility solutions and improved silver-age mobility solutions.
- First time ever in Riga co-creation and participation events had been organized with the silver-age community and associations.
- Improved active seniors' confidence and skills on green mobility.
- Inspired by the Mobility Lab activities, active senior association RASA installed new and modern computer class for elderly people.
- Association RASA has established new seniors' expert group to consult Riga city for senior friendly design.
- Designed first using senior-friendly blockchain technology for the public transport and mobility payment system in order to promote the development of smart, multimodal and sustainable mobility in the City of Riga.

Indicators

Different indicators are used to measure activities and reaching the objectives. Data is collected from the user group during and after our pilot using different methods: interviews, survey, collecting feedback, and reflection of the project team.

Project indicator	*Local indicator*	*Target value*	*Way of measuring*	*Result*	*Time frame*
Number of events	Mobility Lab event	At least 3 events	List of events	8 events	End of the event/project
Number of participants/people involved	Mobility Lab participants	At least 130 participants	List of participants	242 participants	End of the event/project
Materials compiled or developed during implementing the tool/ pilot	Guidelines	At least 1 guideline	Number of guidelines	1 guideline	End of the event/project
Decision makers' knowledge about the needs of senior citizens and the seniors' knowledge about green mobility solutions has increased	Decision makers' knowledge has increased (City departments and PT authorities has been involved in the process, presenting and communicating the results and outcomes of the project to them)	Increased knowledge	Internal reflection in the team, feedback	70% of the municipal employees' knowledge about the needs of senior citizens has improved. 90% seniors' knowledge about green mobility solutions has increased.	Throughout and end of the project
Recommendations for changes/ to support development of green transport	Based on the senior feedback and observation during Mobility Lab sessions, guidelines and concept are compiled	At least 1 recommendation	Number of recommendations	Designed guidelines with recommendations for the adaptation of public space to the needs of senior mobility Improvement of the public transportation stops and local streets in Riga city Designed first senior-friendly blockchain technology for the public transport payment system	Some recommendations can be carried out short-term (during the project) and some long-term
Behavioural change of participants and a decrease in	Based on the Mobility Lab session the participants are motivated to	Precents (%) of seniors who changed behaviour and are more motivated	Interviews during/ after Mobility Lab session,	25% of the seniors have changed their mobility habits and started to use	End of the event/project

Project indicator	Local indicator	Target value	Way of measuring	Result	Time frame
perceived barriers, skills or capability of participants	use green mobility opportunities more	to use green mobility opportunities	internal reflection in the team	more digital mobility possibilities	
Report about the results of engagement	Based on the Mobility Lab sessions, feedback, and reflection of the project team	At least 1 report	Feedback, and reflection of the project team.	Prepared 1 report about Mobility Lab process and engagement results	End of the event/project
Improved engagement of people in silver-age	The results of the engagement of people in silver-age	At least 1 activity from silver-age community	Interviews, collecting feedback	Established senior council Implemented new computer class for silver-age people to improve their digital skills	End of the event/project
Increased capacity of urban transport actors (authorities, ports, infrastructure providers and operators, transport users)	The results of the engagement of municipal authorities	At least 1 activity from municipality	Interviews, collecting feedback	Adopted guidelines for the silver-age friendly public space	End of the event/project
Increase in the effectiveness of green urban mobility offers through higher shares of senior citizens using the respective offers (significant increase in the number of senior citizens using the bicycle sharing systems, increase the acceptance and confidence of senior citizens towards Shuttle-on-Demand services)	The results of the mobility Lab sessions	Increase of public transportation usage	Survey of the public transport users (Riga City Traffic Department 2021)	Decreased public transportation usage by 14% due to Covid-19	End of the event/project
Improved decision-making processes of local public authorities in matters related to green urban mobility:	Riga City Council and transport department understands the importance and basics of process evaluation and can disseminate and bring this knowledge to	Adopted at least 1 activity	Internal reflection in the work team	Public authorities have adopted public space guidelines in the city infrastructure design process and decision-making process to achieve	Throughout and end of the project

Project indicator	*Local indicator*	*Target value*	*Way of measuring*	*Result*	*Time frame*
(1) public authorities develop the capacity to seize, evaluate and process user needs, ***(2) public authorities ensure that this will be done continuously, and not just once,*** ***(3) public authorities safeguard that those findings generated through (1) and (2) feed into decision-making***	other city departments and projects			long term sustainability targets.	
Improved capacity to implement participatory processes	The results of the mobility Lab sessions	At least 1 activity	Interviews, collecting feedback	Established senior council	Throughout and end of the project

Impact

The expected outcome of the GreenSAM project in Riga city – collaboratively developed cross-institutional guidelines and concept for wide scope of innovations in green urban mobility, from public space design to technical and technological innovations, developed in close collaboration with the end users, academia (students and teachers), experts, relevant public and NGO stakeholders – was well achieved.

Impact on mobility challenges

The Mobility Lab tool has a strong participation and co-creation aspects on the process how to improve communication between different municipal stakeholders and silver-age associations and how develop new solutions for green urban mobility and planning.

Main mobility challenges in Riga are related to a lack of senior friendly public spaces and public transportation stops around the city and insufficient technological skills of seniors. Mobility Lab fostered seniors' interest to the technologies and improved their digital skills.

Three main departments of the Riga City Municipality, two largest local universities, experts and 9 seniors' associations were involved in the Mobility Lab activities. Municipal specialists acknowledged that they have obtained new knowledge and improved decision-making confidence in green urban mobility for a specific user group – seniors. In particular, municipal specialists highly evaluated the obtained experience in working with the seniors during the face-to-face and online events.

As part of the Mobility Lab activities, guidelines for the design and planning of the urban public spaces near the transport infrastructure/services were developed with aim to better accommodate needs of seniors. These guidelines were discussed with municipal specialists, improved based on their feedback and suggestions and the final version handled over to them to support them in their daily work.

Impact on the quality of engagement in mobility planning

The aim of the engagement with Mobility Lab tool is to promote collaboration among different professionals, civil servants and target group users, to empower the solutions for green senior mobility. The Mobility Lab was used as a tool for consultation with different parties and stakeholders.

The City of Riga developed and piloted Mobility Lab – the tool for co-creation, testing and new development in the mobility sector. It brings together target group (public authorities/civil servants), user group (seniors), and urban planning experts and students to identify and take forward new innovative green urban mobility solutions with a special focus on technological innovations.

In total, 242 participants, including seniors, have been involved in the project development process.

Before the GreenSAM project seniors were not specifically involved in local mobility planning activities. Municipal departments specialists did not have knowledge about silver-age needs and how they travel around the city. Municipality before the project did not focus on such a challenge in mobility planning.

Through the Mobility Lab sessions main seniors' associations were involved and a typical senior profile was created, assessing their mobility patterns and main challenges in daily mobility. Riga city Mobility planning division and Traffic department were involved in the Mobility Lab activities, and they integrated new public space guidelines in the urban planning framework defining the requirements for mobility planning and design in the city of Riga.

The association RASA has established new seniors' expert group to consult Riga city for senior friendly design.

Impact on knowledge about barriers to the mobility planning

During the Mobility Lab sessions in-depth analysis was undertaken and the key barriers to the urban mobility planning were identified. It resulted in:

1) Improved knowledge on the silver-age mobility needs and patterns, leading to more justified decision making in field of green mobility.
2) Improved technical support to municipal specialists through the public space design guidelines, where they can get essential information that supports their daily activities.
3) Improved seniors' digital skills and activated participation in digital activities.
4) Through the digitalization reduced seniors' loneliness and seclusion, improved mobility skills and social interaction. Digitalization of the different social groups is becoming important part of the planning process.

Impact on user behaviour

User behaviour has been assessed in the survey of the senior residents (age of 65 +). Among other, it was established that most often seniors in Riga choose public transportation and in less often they walk or cycle. Almost two-thirds of our seniors (64.2%) own smartphones, however, most of them lack information about mobility services and digital opportunities.

After interviews 25% of the seniors have changed their mobility habits and started to use more digital mobility possibilities.

As well, developed guidelines are expected to bring positive senior friendly design changes into the public spaces to improve the walkability and cycling conditions in the city.

The expected long-term impact

1) GreenSAM project has significantly improved capacity of the local municipality and decision making on universal senior friendly design. 70% of the municipal employees' knowledge about the needs of senior citizens have improved. During the experiments at Čaka and Bruņinieku street the universal senior friendly street design has been implemented and in long term there will be new similar infrastructure projects aimed to encourage seniors and other citizens to cycle, walk and use public transportation.
2) Digitalization is one of the green mobility forms. Seniors have gained first digital skills on different mobility platforms and communication via internet. 25% of the seniors have changed their mobility habits and started to use more digital mobility possibilities. Impact on silver-age digitalization led to the activism of the local senior association and activated more seniors for social and digital life. Daily senior centre RASA established the first computer class where seniors can socialize and gain new contacts and knowledges about digital skills.

Riga city success story

Before the GreenSAM project seniors of the Riga city have never been involved in the urban mobility planning process, neither educated for the green mobility issues. Also, the needs of seniors have not been identified by the municipality so far. There are more than 168,300 of seniors in Riga city making 26% of the city residents and their number is growing. Due to pandemics, non-appropriate urban infrastructure and insufficient digital skills of senior residents, seniors often are “left behind” the technologies and participatory planning process.

What kind of success it had?

First of all, for the first time in the history, the largest seniors 'associations were involved in order to promote seniors' green mobility and digital skills and involve them into the mobility planning. The 9 largest seniors’ associations were involved. Seniors have recognized that Mobility Lab have improved their knowledges about green mobility and digitalisation.

- 25% of the seniors have changed their mobility habits and started to use more digital mobility possibilities.
- New and modern computer class has been installed in the senior association RASA for elderly people to learn new digital skills and socialize with other seniors.
- Under senior association RASA established senior council to give support for senior friendly city planning and protect senior interest.
- For the first time three main municipal departments and the municipal public transport operator “Rīgas Satiksme” were involved in senior mobility issues.
- The Mobility Lab activities have significantly improved municipal organization decision-making and knowledge about the silver-age mobility. 70% of the municipal employees' knowledge about the needs of senior citizens has improved.
- Within the Mobility Lab activities, guidelines for the improvement of the senior friendly public space and public transportation in the Riga city were developed and the municipal departments have adopted these guidelines in the mobility planning and further street design process. Public transport operator has paid attention to public transport infrastructure, bus stops and visual information.
- New concept of the universal - seniors friendly design process has been started in the city of Riga.
- To test new concept, experimental universal senior friendly street design pilot in Čaka and Bruņinieku street were implemented in more than in 4 km long distance – totally new living street concept with new separated bike lines, public transportation stops, one level pedestrian pavements and crossings, new senior friendly amenities and visual impaired signs. This experiment downgraded traffic intensity more than 25% and improved air quality and safety on the street.
- Designed first senior-friendly blockchain technology for the public transport and mobility system in order to promote the development of smart, multimodal and sustainable mobility in the City of Riga.

*Link to the success video: **https://youtu.be/piCBf5iZc9M***

Lessons learnt

- The Mobility Lab is an efficient tool for co-creation and involvement of the different local municipal authorities, city departments, professionals and silver-age stakeholders to solve the urban mobility challenges.

- The Mobility Lab tool brings together different stakeholders and facilitates mutual collaboration really well, especially different municipal authorities that do not collaborate well enough.
- Cross-sectorial working groups is a fruitful environment for developing innovations and solutions.
- Collaboration between different stakeholders allows to harmonize issues and challenges.
- The Mobility Lab helps to change the paradigm about green mobility.
- The Mobility Lab can help to develop senior friendly concept in the municipality.
- Municipal specialists acknowledged that they have obtained new knowledge and skills in urban green mobility planning for a specific user group – seniors. In particular, specialists highly evaluated the obtained experience in working with the seniors during the face-to-face and online events.
- Seniors have limited knowledge, skills, and technical resources (e.g., hardware and software) to use online communication tools. On-site events with seniors were more successful than online events due to senior limited capability to use online platforms.
- It takes a lot of time and effort to involve seniors in online events.
- Silver age solutions should be a part of the universal design guidelines where all groups of users and transportation are integrated with one solution.

Recommendations for municipal decision-makers and local planners to improve the silver-age mobility:

- Ask seniors about mobility solutions and infrastructure. Also, involve seniors in developing ideas!
- Mobility Lab tool is one of the most effective instruments for the co-creation and involvement process.
- Prepare mobility patterns of seniors: survey seniors about their needs, daily routes, preferable modes of transport, and ability and habits using smart devices and applications. Include quantitative and qualitative questions for a better understanding of different aspects like use of bikes and digitalization.
- Check the Status Quo of your city: have there been projects or other initiatives concerning improved mobility for elderly people.
- Don't be afraid of challenges (Covid-19 pandemic).
- Develop senior-friendly thinking and planning. We have to keep in mind, that some things that are not a barrier for other groups, but for seniors are!
- Senior participation should be considered in in all stages of the process (planning, implementation and evaluation).
- Both parties (municipalities and seniors) should benefit from the process - that's part of the Mobility Lab concept.
- Find the most active seniors associations (a lobby for senior-friendly planning) and other stakeholders who are interested in improving the situation and are in contact with seniors.
- Implementation solutions and design should be considered in the whole process.

- Seniors want to see improvements in real life, not just to talk about it.
- Involving relevant stakeholders who can implement improvements is crucial (e.g., core unit in the municipality).
- Identify a responsible municipal organization that could be an organizer of Mobility Lab activities.
- Municipal departments should identify needs to become more senior-friendly institutions.
- Involve in the Mobility Lab architecture and urban planning students.
- Verify solutions before they are integrated into the planning documents.
- The Mobility Lab team should not comprise more than 30 people.
- It is recommended to organize at least 3 Mobility Lab sessions to reach the most detailed results.
- The Mobility Lab events should be well accessible for older people.
- It is recommended to organize an excursion or social drink for seniors to warm up for the upcoming Mobility Lab session.
- There should be special municipal assistance for the silver-age community to participate in online events.

More information about the GreenSAM project:

- Link to the pilot's section in the GreenSAM website: https://greensam.eu/pilots/
- Mobility Lab tool**:** https://greensam.eu/toolbox/Mobility_Lab.pdf