SCALE-UP
User-Centric & Data Driven Solutions for Connected Urban Poles

SCALE-UP
User-Centric & Data Driven Solutions for Connected Urban Poles

D8.6 Urban Nodes Handbook

Disclaimer

This project has received funding by the European Union's Horizon 2020 research and innovation programme under grant agreement number 955332.

The content of this report reflects only the authors' view. The European Climate, Infrastructure and Environment Executive Agency (CINEA) is not responsible for any use that may be made of the information it contains.

D8.6 – Urban Nodes Handbook			
WP No.	8	**WP Title**	Knowledge exchange and take-up
Deliverable owner		STA	
Author(s)		Eftychia Koliou (STA) Friederike L. Kühl (STA)	
Reviewer(s)		Katia Kishchenko (ANT) Michiel Penne (ANT) Stella Aaltonen (TUR) Iiris Yli-Junnila (TUR) Anna-Kaisa Montonen (TUR) Marja Tommola (SWF) Annika Kunnasvirta (AMK) Maria Eugenia Martinez (MAD) Sergio Fernández Balaguer (EMT) Laura Delgado (CRTM) Elena García Jiménez (ETRA)	
Due Date		31.03.2025	
Delivery Date		11.04.2025	

Version history		
Version	Date	Summary of changes
1.0	31 March 2025	First submission to the European Commission
2.0	10 April 2025	Second submission to the European Commission

List of Acronyms	
Acronym	Meaning
EU	European Union
PDF	Portable Document Format

Legal Disclaimer

This project is co-funded under the European Framework Programme for Research and Innovation Horizon 2020 as part of the Societal Challenges call 2018 "Smart, Green and Integrated Transport".

Contents

Executive Summary

The present deliverable contains a handbook, aimed at summarising and detailing the different local measures of the SCALE-UP project. The handbook highlights which impact each measure has had in the context of the Urban Node. By opting for a brochure-like design, the consortium aims at increasing the attractiveness of the report to inspire other European Nodes to follow SCALE-UP's example and – where suitable replicate the activities once they have been adapted to the local context on-site. The design of the handbook makes it an ideal final dissemination material of the project, since it can also be printed as a booklet and distributed at events, fairs or across networks.

1. Introduction

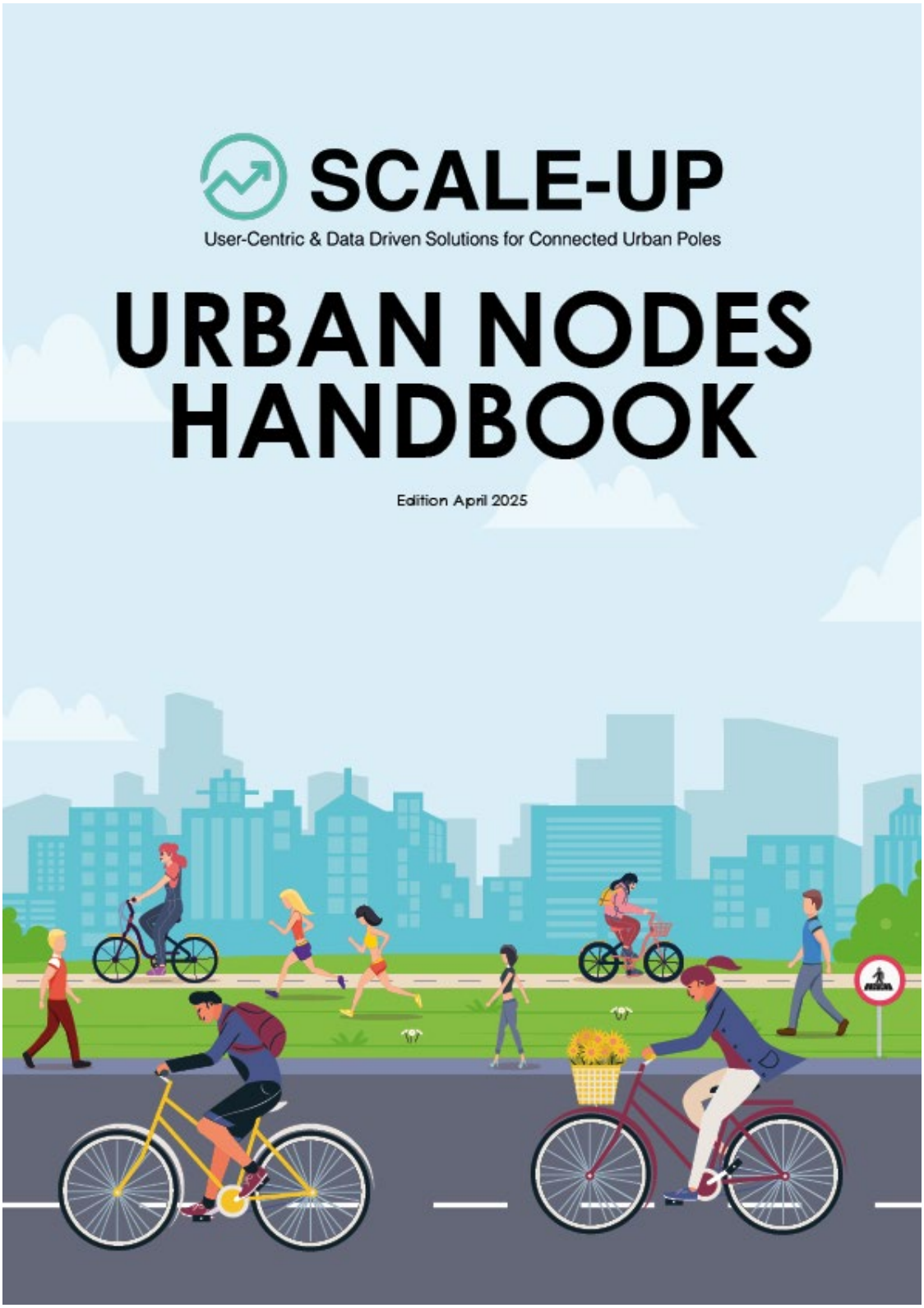
The Urban Nodes Handbook's main objective is to inspire replication, uptake, and scaling up of SCALE-UP measures. To achieve this, each measure's section has been informed by publications, evaluation results and their respective objectives. A printable design was created using Adobe InDesign and a PDF format was distributed amongst the partners.

The handbook contains an introduction, a table of contents, 28 pages dedicated to one SCALE-UP measure in the local Urban Node each as well as an overview of the consortium partners and the social media handles. All required disclaimers are included twice: once on the last and once on the second page (H2020 EU logo, disclaimer and CIVITAS logo).

The pages dedicated to each of the measures contain a description of what was the aim of the Urban Node by implementing the measure (which pain point should be resolved), the results acquired (based on the project evaluation) and the lessons learned (how the pain point was addressed and additional knowledge acquired in the deployment process). Further, each measure is illustrated through photos and diagrams or maps.

The handbook contents are partially based on and informed by previous (public) deliverables D5.2 (Final Report on Implementation of accessible and affordable innovative clean and safe mobility solutions), D6.2 (Final Report on Implementation of behavioural change with a focus on active and healthy modes solutions) and D7.8 (Impact and Process evaluation of the SCALE-UP measures 2). All of these deliverables as well as the Urban Nodes Handbook are available on the public SCALE-UP website.

2. Urban Nodes Handbook



CONTENTS

INTRODUCTION

SCALE-UP is an EU funded Innovation Action focusing on three European Urban Nodes: Antwerp (BE), Madrid (ES) and Turku (FI).

SCALE-UP (Scale Up User-Centric and Data-Driven Solutions for Connected Urban Poles) is coordinated by the City of Antwerp and brings together 23 partners from five European Member States. The project started in June 2021 and will conclude in May 2025.

Over the course of 48 months, SCALE-UP has implemented 28 urban mobility measures, focusing on accelerating green and inclusive mobility transitions in the three Urban Nodes. SCALE-UP centres around developing a complex, multimodal transport system that will serve as a lasting legacy for these cities and set an example for urban mobility transformations across Europe and beyond.

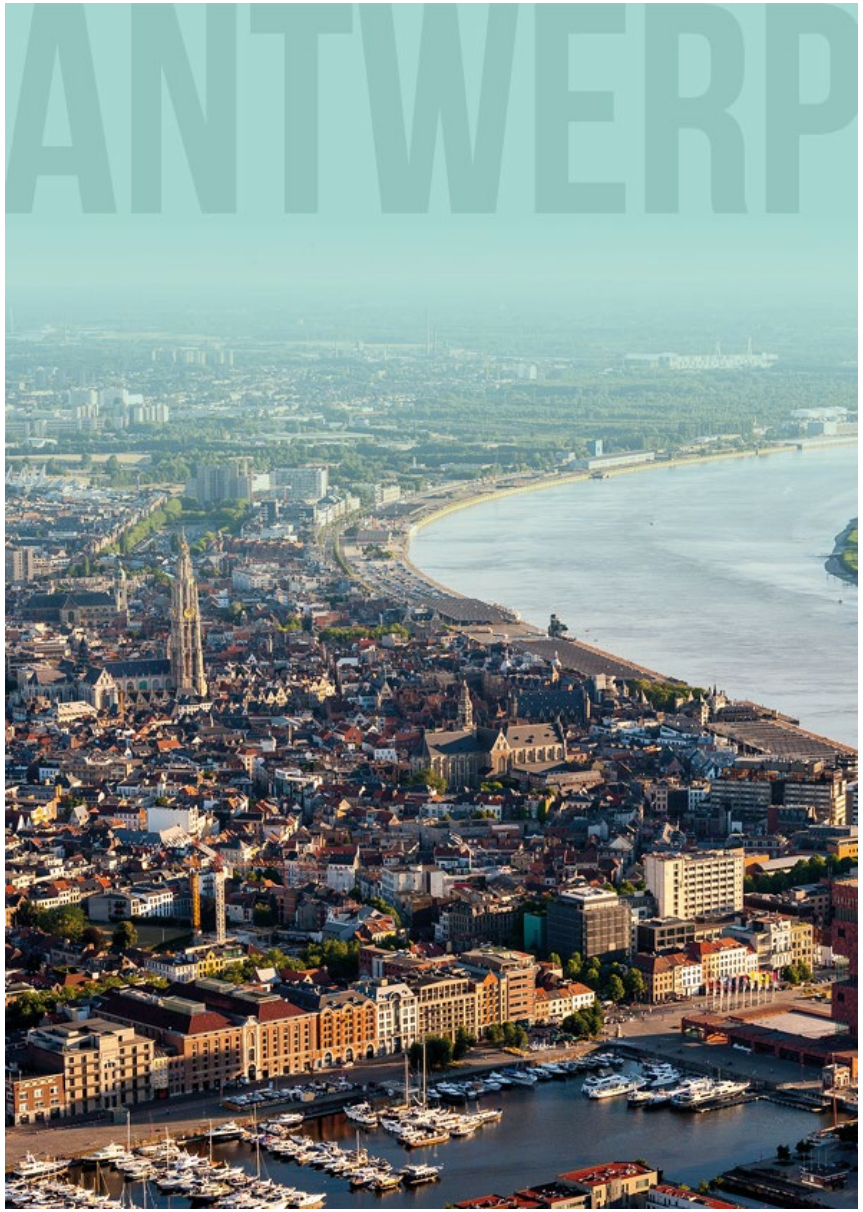
This handbook presents an overview of each measure, outlining its objectives, implementation, and key lessons learned. Its main goal is to inspire and inform other cities to adopt similar measures by showcasing the innovative strategies and policies developed in Antwerp, Madrid, and Turku.

ANTWERP

MADRID

TURKU

4



A1: FOSTERING COOPERATION ACROSS GOVERNANCE BODIES

AIM

To improve multilevel governance within the Antwerp Transport Region with a special focus on improving collaboration between different sectors and establishing strong(er) partnerships.

RESULTS

A transition towards more structured decision-making within the Antwerp Transport Region as a whole. This transformation has been facilitated by the introduction of three key cooperation structures that have considerably boosted collaboration and knowledge sharing among municipalities:

- Service Centre: A dedicated entity that supports all municipalities of the Functional Urban Area (FUA) in implementing the policies and actions outlined in Antwerp's regional SUMP "Roadmap 2030".
- Administrative Consultations: Regular sessions designed to facilitate knowledge exchange and enhance the involvement of municipal administrations.
- Upscaling of Smart Ways to Antwerp employee approach for encouraging behavioural change.

These initiatives have not only promoted sustainable commuting but also facilitated the implementation of the regional mobility plan. The initiatives have streamlined decision-making procedures, resulting in a smoother, more efficient governance process throughout the region.

LESSONS LEARNED

When creating governance structures, it is important to ensure engagement with all stakeholders on each level. Also, governance structures should remain flexible as it is vital to continuously monitor and adjust as needed. The same applies for the evaluation framework, that is always a work in progress.

Source: Antwerp Transport Region

Administrative Consultation

Antwerp Regional SUMP

A2: MAAS ECOSYSTEM AND GOVERNANCE FRAMEWORK

AIM

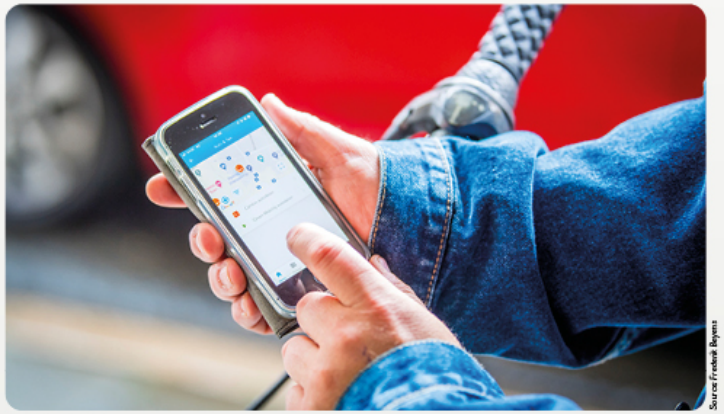
Establish a solid governance framework that serves as a foundation for a dynamic Mobility as a Service (MaaS) ecosystem. By investing in co-creation projects and actively engaging multiple stakeholder groups, this measure seeks to create the necessary conditions for innovation and integration within the mobility sector.

RESULTS

The adoption of MaaS has grown rapidly and the number of users has more than doubled within only one year from 3,945 users in 2022 to 9,153 users in 2023. The integration of most of the mature and available mobility solutions into the MaaS framework has supported a more efficient transport system in the City of Antwerp. Additionally, the measure succeeded in increasing trust among various stakeholder groups and fostering cooperation between multiple government bodies. This collaboration led to the development of a basic framework for MaaS – the interfederal vision – which respects the unique characteristics of each region. Mobility trends among Antwerp residents also highlight a shift away from car use, with a growing preference for cycling (particularly among commuters), increased use of shared mobility services, and a notable rise in the adoption of business-to-business MaaS services.

LESSONS LEARNED

By working together in a participatory process with the MaaS ecosystem, the Flemish MaaS agreement framework was developed. This was followed by a collaboration with the 4 administrations of mobility in Belgium, resulting in an inter-federal vision on MaaS. To further elaborate this vision, the choice was made to work with inter-federal working groups. This is crucial to learn from each other and to align the different initiatives. After all, mobility does not stop at the regional border.



Source: Frederik Beyens

MaaS app in use

A3: NEXT-GEN MOBILITY HUBS AND NETWORK OPTIMISATION

AIM

Create multimodal hubs that connect different transport modes, including cycling, to support a more sustainable transport system. Throughout the Antwerp Transport Region, transport networks were optimised by integrating various mobility options - ranging from public transport to cycling - into cohesive, accessible hubs. The measure brings together a diverse range of stakeholders, including public transport operators, municipalities, cities, and regional entities, ensuring that every relevant actor contributes to a streamlined and sustainable mobility framework.

RESULTS

The P&Rs exploited by Lantis have proven to be highly successful. In two years' time, the number of users of the car parks has almost doubled. In total, there are 9 P&Rs in the surroundings of the city of Antwerp. Next to that, this measure created a complete overview of all bottlenecks and missing links in the cycle highway network through an interactive dashboard, a complete evaluation of a 3D camera investigation of 5 dangerous crossings, and a full set of recommendations to improve those crossings. With this dashboard, the Antwerp Transport Region (ATR) and other responsible authorities can start improving the cycle highway network, which will result in a better bikeability index and less dangerous crossings.

LESSONS LEARNED

The importance of early stakeholder identification by ensuring that at least 3 to 4 key parties are engaged with clearly defined roles, coordination methods, and financial responsibilities and establishing an evaluation framework based on initial data. Municipalities cannot manage the multimodal hub roll-out alone, which necessitates broad collaboration and sufficient funding for annual surveys to monitor usage. Additionally, for the cycle highway network, relying solely on 3D camera data is insufficient, so it is crucial to begin with the most critical parameters and gradually refine the data collection process, given that there is no one-to-one relationship between conflict numbers and actual accidents.

Source: Gloria Cavalieri

Cycling Highway in Antwerp

Source: Dries Luyten

Park & Ride facility in Antwerp

A4: MULTIMODAL MOBILITY DATA STRATEGY

AIM

Develop a management tool for multi-modal mobility management and planning. This tool is designed to reduce car usage by promoting the increased adoption of shared mobility solutions. By leveraging a data-driven approach, the initiative integrates information from various mobility modes to provide actionable insights that support efficient decision-making and operational optimisation. Ultimately, this measure facilitates a shift towards a more sustainable transport system by encouraging behavioural changes and enhancing the overall efficiency of Antwerp's mobility network.

RESULTS

The M4 tool has been in use since the summer of 2022 and has gone through multiple updates. To make data more accessible and stimulate data sharing, the city created the data broker platform. This platform contains several data sources which are 'open' and thus available for use by third parties. The implementation of the Mobility Data Strategy has yielded impressive outcomes. In 2023, shared bike trips nearly reached 7 million annually, while shared e-scooter trips surged five-fold from over half a million in 2020 to almost 2.5 million in 2023. Additionally, the modal split analysis reveals a decline in car usage, with trips by car dropping from 48% to 37% over the period. Overall, the measure contributed to the creation of a clear framework for shared mobility in the Urban Node, setting requirements that have fostered a mature and viable environment for mobility providers and boosted the take-up of shared mobility solutions among residents.

LESSONS LEARNED

Establishing trust with mobility providers is essential, ensuring they meet critical requirements like data standardisation and sharing, while the Urban Node must precisely define the data it needs to safeguard both operational goals and providers' business models. Although the M4 tool is operational, significant time remains dedicated to aligning data standards as not all players are fully compliant yet, reflecting the ever-evolving nature of the domain. Finally, while developing the tool in-house has allowed for complete control over its functionalities and quality, it also entailed considerable time investment compared to potentially faster off-the-shelf solutions.

Source: Victoria Moreno

Shared e-scooter

A5: SMART DATA – MANAGING INTRAPORT FLOWS

AIM

Develop and implement a management tool specifically designed for the intraport flow at the Port of Antwerp-Bruges. The tool aims to optimise data collection by leveraging real-time information, thereby enhancing operational efficiency and supporting more informed decision-making. By providing timely insights into mobility patterns and cargo flows within the port, the platform streamlines logistics and improves overall regional connectivity.

RESULTS

Achieve a 10% modal shift from road freight to rail and barge and to integrate all data flows into one centralised platform. However, as the platform is not yet active, this modal shift could not be realised. The most significant achievement to date has been the development of robust methods for data collection and visualisation. By the end of SCALE-UP, 60% of all rail data, 70% of road data, and 25% of cycling data became accessible, alongside 100% of the barge data, which had already been available before. Barge data is already being visualised, and the visualisation of road and rail data is now set to begin. The groundwork laid by the SCALE-UP project has positioned the platform to launch later in 2025.

LESSONS LEARNED

Before implementation can begin, it is important to secure a complete overview of the available data and ensure its usability, as delays in data acquisition significantly postponed the platform's creation. Now that almost all necessary data is accessible, the platform is set to effectively monitor and plan freight flows and improve multimodal transshipments in the port - a long period of preparatory work expected to yield benefits in the months and years to come. Additionally, although the extensive consultations with several partners prolonged the project timeline, this collaborative approach was crucial for achieving a sustainable and robust outcome.

Source: Lead_Zaha Hadid Architects

Port of Antwerp-Bruges

Source: Signal Systems

Port of Antwerp-Bruges

A6: THE RING ROAD AS A HIGHWAY FOR GREEN ENERGY

AIM

Explore how Antwerp's ring road can be transformed into a multifunctional corridor that not only supports traffic flows but also serves as a carrier for sustainable energy, heat, and water in the Urban Node and the region. The initiative investigates the potential of harnessing the residual heat generated by the port's industrial activities and integrating it into a comprehensive heat network within the Urban Node.

RESULTS

As this measure consists solely of studies mapping the potential and need for energy, heat, and water generation, its impact results are defined in theoretical terms. The studies indicate that if the heat network is used to its maximum potential, there could be a reduction of 300 kilotons from 700 kilotons to 400 kilotons of CO_2 per year. Moreover, utilising renewable energy for the lighting and ventilation of the covered ring road could lead to an annual saving of an additional 1.5 tonnes of CO_2. Additionally, the renewable energy produced through the Noordkasteel project is projected to deliver 11,360 MWh, surpassing the ring road's calculated energy demand of 9,746 MWh, which confirms that enough energy can be produced to meet the operational needs just through the local renewable energy sources alone.

LESSONS LEARNED

Leveraging residual industrial heat can significantly contribute to urban heating needs and potentially reduce CO_2 emissions by almost half, while integrating energy transition measures within existing infrastructures remains challenging due to spatial constraints both underground and above ground. Seizing opportunities - such as establishing ring parks for heat net infrastructure - is vital, despite the long-term return of investment complicating stakeholder engagement with partners like Katoennatie for wind turbine projects. Moreover, it is crucial to communicate the importance of energy transition from the very early stages to all stakeholders and the public, as a clear business case exists for renewable energy to sustainably power the lighting and ventilation of the ring road.

Source: De Grote Verbinding

Map overview of The Big Link project

Source: Oosterweelverbinding

Drone image of Oosterweel construction site

A7: BRINGING SHARED E-BIKES TO THE FUNCTIONAL URBAN AREA

AIM

Implement an integrated electric bike-sharing system throughout the entire Antwerp Transport Region. Operated by the shared bike provider Donkey Republic, this initiative is designed to offer a sustainable and efficient mode of transport that caters to the diverse mobility needs of residents and visitors. As bicycle-sharing systems so far mostly have been implemented in cities, implementation at such a scale is new and an opportunity for the region to implement clean transport in the different areas of the Antwerp Transport Region.

RESULTS

As of 2024, the (e-)bike-sharing system operates in 19 municipalities and 3 business parks within the Antwerp Transport Region, with 2,179 bikes spread over 559 hubs. In 2023, 47,000 users undertook 342,000 trips, and 13.4% of surveyed users noted they would have otherwise used a car. These efforts contributed to a modal shift, reducing car commuting among Antwerp citizens from 40.7% in 2019 to 37.1% in 2024. Customer satisfaction improved from 3.7 to 4.3 stars over two years. A notable challenge remains the limited integration with MaaS apps since most users must download the Donkey Republic app separately. A good and structural contact was established between the Antwerp Transport Region, municipalities and Donkey Republic.

LESSONS LEARNED

Overall, the experience shows that targeting specific user groups and tailoring communication is essential, as more than 85% of users would have chosen another sustainable mode if the (e-)bike-sharing system were unavailable - highlighting its role in replacing public transport and active modes more than cars. Early engagement of the system operator with municipalities and companies is critical to secure additional hubs by clearly conveying mutual benefits. Additionally, prioritising a greater number of hubs with fewer bikes each helps balance higher urban usage with demand in outer regions. Finally, integrating the shared bike system into MaaS platforms remains challenging due to the scarcity of B2C MaaS providers in the market.

Source: Frederik Beyens

Donkey Republic bike in use in the city of Antwerp

A8: SAFE ROUTING FOR FREIGHT AND LOGISTICS

AIM

The City of Antwerp has recognised the need for a comprehensive tool to support urban logistics and freight transport to better coordinate freight traffic. In response, the city of Antwerp in cooperation with SCALE-UP partners Be-Mobile and the Antwerp Transport Region developed a freight route planner that utilises data of different key parameters, such as i) school environments, ii) sharp curves, iii) bridges & tunnels, iv) school streets, v) pedestrian zones, vi) car-free zones, and vii) road categorisation to provide safe route advice for freight transport. Initially, data was manually gathered from the municipalities, but not all had the required digital information, creating a significant bottleneck.

RESULTS

Throughout this measure, a route network has been developed featuring preferred safe freight routes, with policy-based routing rules translated into machine-readable code and integrated into a real-time route-planning API. Stakeholders' cooperation in the data collection process has been significantly improved and also in freight data sharing. Although the measure is not yet fully operational; it is part of a broader initiative by urban authorities and the transport and logistics sector to promote safer and more sustainable freight operations.

LESSONS LEARNED

A strong willingness among stakeholders has been identified to advance traffic safety and sustainable freight operations, while also highlighting the transport and logistics sector's demand for mature, hands-on tools before committing time and resources. Ensuring the quality of the route planner is heavily dependent on continuously updated and high-quality data, which remains a critical factor. Provided that these data conditions are met, the route planner is expected to play a significant role in reducing freight-related traffic accidents.

Source: Frederik Beyens

Logistics in the city of Antwerp

A9: NUDGING RESIDENTS AND VISITORS SUCCESSFULLY

AIM

Nudge and incentivise sustainable travel by offering personalised incentives through a decentralised, consent-driven mobility profile that complies with GDPR. The initiative includes a back-office system to digitalise and standardise the entire incentive process - from application and awarding incentives to monitoring their success, acceptance and compliance. This new platform would make it possible to improve nudging and awareness raising by installing different incentive schemes. Additionally, Smart Ways to Antwerp provides a route planner via an app and website, helping guide visitors and residents towards greener travel choices.

RESULTS

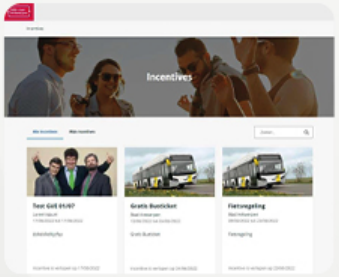
After a long and complex implementation process, the first version of the incentives platform was delivered. However, by the end of the SCALE-UP project, the platform was not yet fully operational, so no incentives were launched. On the other hand, the overall success of Smart Ways to Antwerp should be highlighted. T he unique multimodal route planner and mobility app - available on both the website and in app stores, combines all travel modes, from bus to car to shared bike, and guides users through ongoing roadworks in and around the city. The website also provides additional information on topics such as low-emission zone, roadworks, and corporate services. In 2023, the route planner recorded 97,710 unique users and 180,389 views.

LESSONS LEARNED

The construction of a decentralised mobility profile is a time and resources-intensive project. The incentives platform is expected to enhance nudging and raise awareness through the integration of various incentive schemes, with its success ultimately measured by the effective rollout and performance of these schemes. However, due to delays in the platform's launch, a full assessment of its overall impact is not yet possible. In contrast, the success of the Smart Ways to Antwerp website, route planner and mobility map is clear since it has become an indispensable tool for guiding inhabitants, and visitors towards and through the city (and beyond) by offering multimodal travel advice and information on all transport modes in and around the city. Thanks to smart marketing and the necessity of avoiding traffic jams, its usage has boomed in recent years.

Source: City of Antwerp

Campaigns Discount provided by the City of Antwerp



Source: City of Antwerp

Incentives provided by the City of Antwerp

A10: INCREASE SUSTAINABLE TRAVEL TOWARDS EVENTS

AIM

Boost sustainable travel to and from events held in the City of Antwerp and throughout the Antwerp Transport Region. The initiative includes the development of a comprehensive guideline book and rules for event organisers to promote sustainable mobility, the promotion of active travel through campaigns and incentives, and the improvement of bike parking infrastructure. Together, these actions are intended to encourage active travel modes, reduce reliance on private vehicles, and contribute to a greener, more accessible urban environment.

RESULTS

A comprehensive set of guidelines have been established for event organisers to include sustainable mobility in their event organisation, take measures and provide the necessary information and infrastructure. Events focusing on city inhabitants tend to have a lower car share than events that attract visitors from everywhere. The city focuses its efforts on events with higher car use, as they offer greater potential for shifting the modal share. Most events show a stability or decrease in car use. The guidelines for event organisers led to more temporary bike parking (sometimes even staffed) being provided at events. Satisfaction with bike parking among city inhabitants has remained consistently on a high level since the start of SCALE-UP, with nearly 79% of city residents reporting being satisfied or very satisfied. The city also promotes its existing covered and secured bike parking. The Smart Ways to Antwerp website promotes the route planner for events and also asks the organiser to include this in its event communication, it also has a webpage for each event outlining the accessibility options to the event in question. Awareness of Smart Ways to Antwerp among inhabitants from the province of Antwerp has increased, from 61% to 71%, demonstrating the effectiveness of campaigns and communication efforts. Additionally, website data indicates that event visitors frequently use the platform to access information on travel options.

LESSONS LEARNED

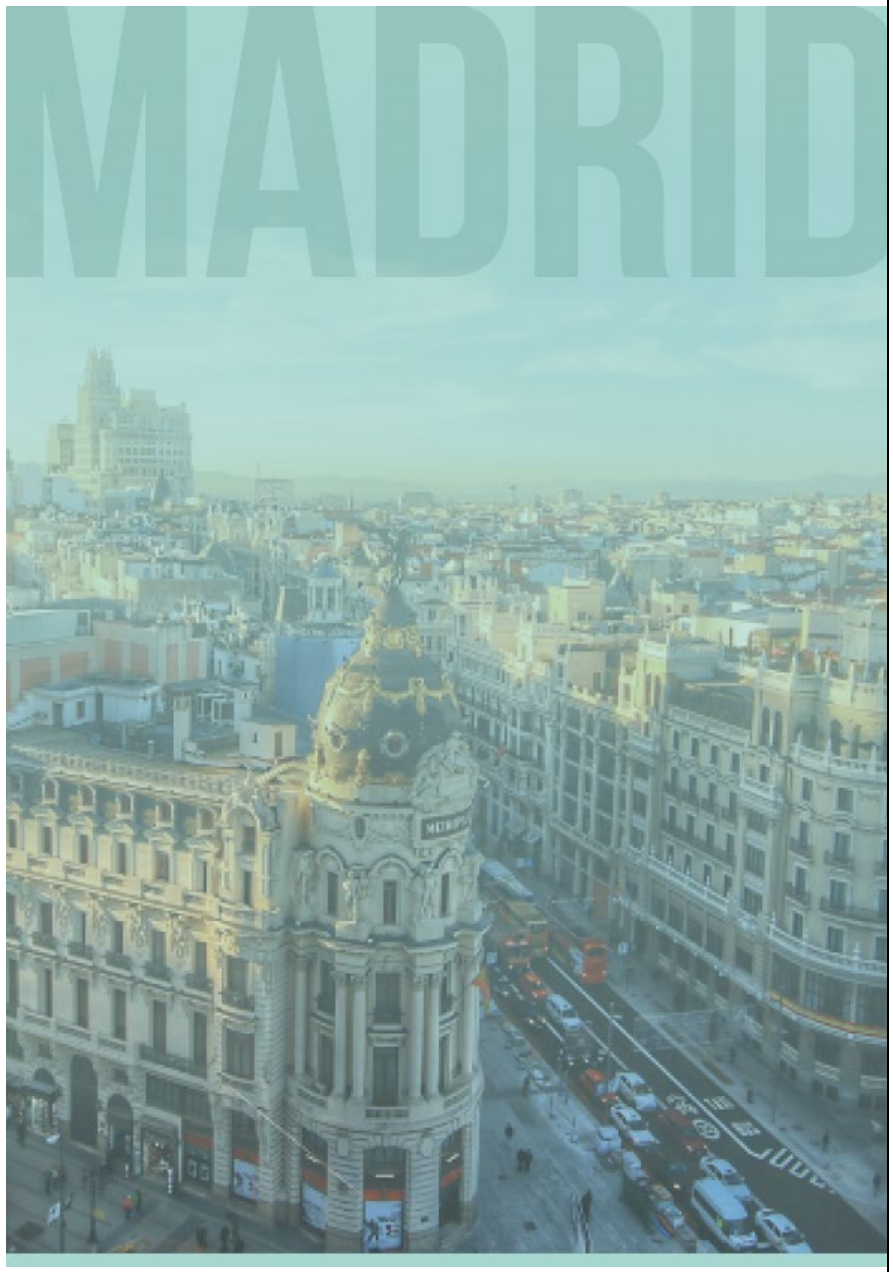
By guiding event organisers from the start with a structured approach, via the guideline book, event organisers start to proactively pay attention to sustainable travel in their communication. The awareness-raising campaigns contribute to the decrease in car use at many events; in combination with the general tendency in Flanders to cycle more. Investing in awareness raising for sustainable travel towards events is intensive. It is therefore to better focus resources on events where there is clearly low hanging fruit (= a modal car share above 50%). Communication by event organisers is more impactful because they directly reach the target group.

Visual used during campaigns about bike parking infrastructure in the City (Left). Picture of bike repair shop at events (Right)

Smart Ways to Antwerp marketing at outdoor event

Source: City of Antwerp

Campaign poster of the mobility festival 'Antwerpen Shift' on car-free Sunday



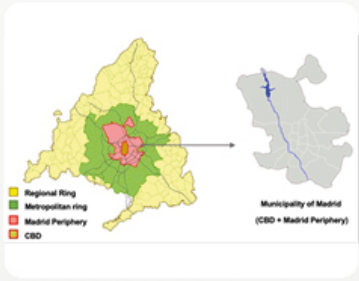
M1: FOSTERING COOPERATION ACROSS STAKEHOLDERS AND GOVERNANCE LEVELS

AIM

Establish a more effective governance and cooperation model for the entire Madrid region by enhancing coordination among key transport stakeholders. This initiative is closely aligned with the Madrid 360 Sustainability Strategy (2019), which sets the City's environmental mobility goals through 2030 and the Urban Sustainable Mobility Plan (2022). At the regional level, the region is updating its SUMP for 2023-2035 with the participation of the Public Transport Authority CRTM.

RESULTS

Overall, cooperation between administrative levels is deemed good, with the Regional Transport Consortium of Madrid CRTM, the Municipal Transport Company of Madrid EMT, and the Madrid City Council working well in alignment with the Central Government. Furthermore, the development of MaaS has improved collaboration with private shared and micro-mobility service providers. Notable advancements include updates to EMT's Madrid Mobility 360 app and the launch of a regional MaaS pilot app. Cooperation between stakeholders, public institutions, and private mobility providers remains robust, driven by long-term partnerships and sustainability-focused contracts. In addition, the three administrations national, regional and local, with the participation of CRTM and the municipal public operator are participating in a working group on the new TEN-T regulation, contributing to the definition of indicators, and establishing a new governance framework for the European policies.



Madrid Administrative and functional Boundaries

LESSONS LEARNED

Experience has shown that effective cooperation is crucial for advancing sustainable mobility both within the Urban Node and the wider Functional Urban Area, with joint projects encompassing multiple stakeholders significantly enhancing collaboration. The development of the MaaS scheme has further strengthened these partnerships. However, strategy development faces challenges due to limitations in competencies and overlapping jurisdictions, indicating that there is always room for improvement in coordinating efforts across different administrative layers.

17

M2: INTEGRATING MULTIMODAL HUBS IN THE WIDER NETWORK

AIM

Enhance the commuting flow between the Madrid Urban Node and neighbouring municipalities within a 40-50 km radius by promoting public transport through a Park & Ride approach. Developing and optimising multimodal hubs is the key to enabling commuters to conveniently park their private vehicles on the outskirts and seamlessly transfer to public transport for their journey into the Urban Node. By reducing congestion in the centre and encouraging a shift towards sustainable travel modes, this measure seeks to lower carbon emissions and improve overall regional mobility.

RESULTS

Madrid region offers 71 parking facilities that are linked with public transport and 23 are located in Madrid City. The regional public transport authority CRTM has developed the "Aparca-T", a Park & Ride plan that aims to enhance multimodal integration and optimise multimodal hubs through better integration between parking and public transport. In short, people can now leave their cars and use public transport. Since 2021, 9 facilities have been operational, including 3 (Estadio Metropolitano, Nuestra Señora del Recuerdo and Avenida de Portugal) that were integrated into the Aparca-T Plan. These facilities offer free parking for public transport users. EMT has enhanced these hubs by introducing services such as electric charging stations, secure bike parking, bike sharing system BiciMAD, e-commerce lockers, and shared mobility options. In addition, the City Council of Madrid has studied 11 new locations to expand the P&R network, within its plan.

LESSONS LEARNED

Effective communication campaigns are essential to raise awareness about the new parking facilities, ensuring their successful adoption. Monitoring user satisfaction plays a crucial role in guiding resource investment while simplifying the P&R usage process. Improving the public transport card validation is vital for easing multimodal trips. The significant increase in P&R usage, with 42% of users indicating they would have driven if the facility were unavailable, highlights the impact of these measures. Future expansion should focus on strategically located P&R sites near public transport, with careful attention to financial sustainability, user convenience, and seamless integration into existing transport networks.

Park & Ride facility in Fuente de la Mora, in Madrid (Spain)

Park & Ride facility in Pitis, in Madrid (Spain)

M3: INTEGRATING SUSTAINABLE LOGISTICS INTO MOBILITY HUBS

AIM

Mobility hubs are a crucial strategy for enhancing air quality by transforming urban mobility. Recognised as strategic cornerstones in the Madrid 360 strategy the new Sustainable Urban Plan SUMP and the Sustainable Urban Distribution Strategy, mobility hubs and micro hubs are central to promoting sustainable first and last mile logistics. In line with this vision, the City of Madrid has developed a new "Sustainable Mobility Hub of Services" in its centre.

RESULTS

Launched on 30 August 2022, the Canalejas 360 hub is located beneath Sevilla Street and Canalejas Square – just a few steps from the iconic Puerta del Sol Square. The Canalejas 360 hub now boasts the largest electric vehicle charging station in Spain, along with a zero-emission shared mobility area, bike parking and storage, and a micro-logistic area including pick-up lockers. All services are accessible to users, and two logistics companies operate within the hub - one as the main operator and the other providing delivery lockers. By the end of the project, a total of 19,654 deliveries were made, with delivery vehicles consuming 9,090 kWh of energy for charging. By November 2023, the hub had already contributed significantly to urban logistics sustainability by avoiding 103.2 tonnes of CO_2 emissions through the use of electric and non-motorised vehicles.

LESSONS LEARNED

The measure is planned to expand to 11 additional locations in other districts. This initiative demonstrated that adapting the existing infrastructure was more complex than anticipated, requiring specialised personnel for civil works. Finally, the limited availability of complete data highlighted the critical need for mandatory data-sharing mechanisms with operating companies to enable a comprehensive evaluation. The challenges faced during both the design and deployment phases were mitigated as EMTs appointed specialised personnel to further support permit management and address the complexities of infrastructure adaptation.


The "Canalejas 360" hub


EV chargers at the hub "Canalejas 360"

Canalejas 360 car sharing station

Bike-parking and storage at the hub "Canalejas 360"

M4: ESTABLISHING A DATA-DRIVEN MOBILITY MANAGEMENT FRAMEWORK

AIM

Data-driven strategies and tools to enhance mobility management in Madrid. Its primary focus is the development and integration of a MaaS pilot app that combines multiple transport modes including public transport, shared micro-mobility, car-sharing, taxis, Park & Ride, and green routes into one cohesive digital platform.

RESULTS

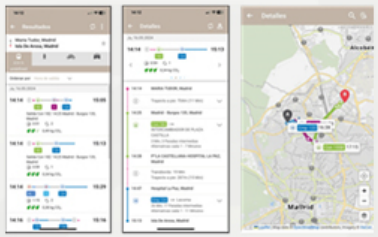
The MaaS pilot app, developed by regional public transport authority CRTM in collaboration with Hacon (part of Siemens Mobility), has been tested with 200 users (incentivised by free travel passes) and supports multimodal journey planning. It integrates 40 operators (representing 70% of Madrid's available operators) including 37 public transport providers, one shared e-bike service, one taxi service, one car-sharing service, and Park & Ride facilities, allowing car users to test different mobility options, aiming for shifting to public transport and shared modes. Overall, the users participating in the pilot had a positive experience with the app, 70% agreed that it was easy to use.

Additionally, a QR reading system has been deployed on all EMT buses, and active users of the MPASS app have grown by 92%, from 77,082 in May 2023 to 148,060 in September 2024. EMT, in partnership with the Technical University of Madrid, has also developed data-driven tools to enhance the existing BiciMAD shared bike system.

ETRA developed the Big Data Visualisation Tool, an origin-destination (OD) matrix using synthetic data, to analyse passenger flow, behaviour patterns, and bus demand. By integrating external factors and frequently used routes, it enhances demand forecasting and resource allocation in Madrid. Additionally, a bus speed analysis based on real-time data helped optimise stop times, improving efficiency and promoting a greener transport system.

LESSONS LEARNED

Collaboration is essential: integrating private operators through deep link strategies - redirecting users to the operators' apps - has ensured a mutual benefit while maintaining each party's control. Public sector leadership, particularly from CRTM, has been crucial in building trust and encouraging private sector participation despite data-sharing challenges. Finally, flexibility and innovation, such as the use of synthetic data and the continuous introduction of new features have been key to overcoming challenges and driving ongoing progress in the project.



Madrid MaaS app

Madrid MaaS app in use

M5: GET PEOPLE MOVING – ACTIVE MOBILITY FOR CITIZENS

AIM

Enhance and expand the BiciMAD bike-sharing system in Madrid by increasing the number of bike stations and integrating advanced technologies. The primary focus is on extending the system's reach to districts outside the city centre, improving accessibility and promoting sustainable mobility across the broader metropolitan area.

RESULTS

A significant milestone of the measure is the expansion of BiciMAD to 21 districts in the Madrid Urban Node, with 630 stations. The measure has significantly increased the infrastructure and capacity of the shared mobility service in Madrid, resulting in 7,500 e-bikes and 611 bike stations over the 21 city districts. In October 2024, the bike-sharing system was enlarged a second time, reaching 7,735 e-bikes and 630 bike stations. On 17 November 2023, Bicimad reached a record of daily uses, with 57.116 uses/day. In 2024, the system reached a record number of 9.94 million.

BiciMAD user on the move in Madrid

A survey conducted in 2022, before the expansion of BiciMAD, shows that 77% of respondents considered the expansion positive or very positive. Various proactive measures, including media campaigns and a free service period from March 2023 to January 2024, contributed to an increase in users. Finally, the introduction of more resilient bicycles from the new supplier further improved the service.

The BiciMAD app in use in Madrid

LESSONS LEARNED

The successful expansion of BiciMAD to 21 districts was a significant step towards future growth and broader regional coverage. Proactive measures, including the free-use period and the effective promotion of the initiative, have played a crucial role in its positive reception and success.

M6: ZERO EMISSIONS THROUGH ENERGY STORAGE SOLUTIONS

AIM

Reduce pollution by lowering CO_2 emissions and other air pollutants, thereby improving the quality of life for its inhabitants. The initiative acknowledges the need to replace conventional energy sources with renewables, especially considering current climate and geopolitical crises. With the promotion of electric vehicles usage and advancement of intelligent energy management systems, the measure support Madrid's transition to cleaner and greener transport. Additionally, enhancing energy supply and storage infrastructure, allows the widespread adoption of zero-emission transport solutions, contributing to a more sustainable and environmentally friendly urban future.

RESULTS

Three key actions were implemented to promote clean mobility in Madrid, while the EMT's Electro-EMT app was upgraded with an API to manage public fast-charging infrastructure. This led to a significant increase in app usage, rising from 400 users per month to 3,969 by October 2024.

Additionally, the deployment of EV chargers exceeded expectations, with 17 chargers for e-bikes installed across 18 BiciPARK facilities (surpassing the initial target of 3 chargers in 7 locations). As a result, BiciPARK usage rose from just 3 annual uses in 2021 to 1,104 in 2024.

BiciPARK at Recoletos360 Mobility hub

LESSONS LEARNED

Effective communication through regular multi-stakeholder meetings was essential for maintaining alignment, monitoring progress, and resolving delays. Flexibility and strategic planning were key to overcoming timing and regulatory challenges, while Madrid's strong policy framework and commitment to collaboration played a crucial role in the successful implementation of initiatives, particularly the expansion of BiciPARK chargers. Exceeding initial targets was possible due to this solid support and careful planning. Overall, aligning timelines, addressing regulatory barriers, and leveraging both local and international drivers proved vital for optimising implementation outcomes.

EMT Charging point in Canalejas 360 Mobility Hub (left) and BiciPark facilities at Fuente de la Mora P&R (right)

M7: RECLAIMING MORE URBAN SPACE FOR CITIZENS

AIM

Implement car-free areas not only in Madrid's centre but in every district in the city By enhancing active mobility such as walking and cycling the liveability of dense urban areas can be improved. Reduced car traffic and reclaimed public spaces for pedestrians and cyclists foster healthier, more sustainable urban environments.

RESULTS

Pedestrian areas have been deployed in 17 of 21 districts, creating 87,135 m² of pedestrian space. EMT adapted bus routes and integrated *BiciMAD* services to support these changes. Citizen satisfaction is high, with 68% of residents in Puerta del Sol and 73% in Plaza de Olavide satisfied with the pedestrianisation, and over 75% in both areas recognising improved liveability. Business feedback was mixed, with 50% of local businesses reporting increased sales. A follow-up survey is planned for March 2025 to gather additional insights.

LESSONS LEARNED

There is strong public support for pedestrianisation in the assessed areas, exceeding expectations based on previous studies. Effective communication, especially regarding changes to public transport routes, has proven crucial for smooth implementation. Complementary measures, such as reducing speed limits near schools, improving accessibility for the elderly, and initiatives like the Anda Madrid plan, launched by the Madrid City Council, to promote exploring the city of Madrid on foot through six iconic walking routes connecting key cultural, historical and green landmarks, all leading to city's main points, have further encouraged walking and strengthened the success of pedestrianisation efforts.

Pedestrianisation area in Mercado de San Miguel in Madrid


Pedestrianisation area in Plaza de Olavide in Madrid


Pedestrianisation area in Olavide in Madrid


Sign marking a pedestrian zone in Madrid city centre

M8: NUDGING MULTIMODALITY AT REGIONAL LEVEL

AIM

Promote multimodal and sustainable travel at a regional level through two sub-measures. The first focuses on enhancing the Green Routes programme by developing a route planner that provides users with detailed information about regional Green Routes and their connections to public transport and other sustainable travel options. The second sub-measure targets improved communication strategies, particularly around large events and special days, to encourage the use of sustainable and multimodal transport for event attendees.

Picture of the Green Routes Map in the Madrid metro station Lago

RESULTS

The CRTM Green Routes feature was added to the MaaS app via a direct link to the CRTM website, offering users access to comprehensive route information. Full integration of the Green Routes into the app was not achieved due to resource constraints. The average number of downloads of Green Routes information, is 282 downloads, having a very important increase when something was published in social media. The City Council, EMT and CRTM have provided communication campaigns in two specific events (the MadCool festival and the central event within the European Mobility Week). The Mad Cool Festival showed progress in communication, with event organisers providing better information on public transport options and EMT and CRTM enhancing public transport services on the event days. For the European Mobility Week, extensive communication campaigns, including workshops and other activities, were carried out to promote sustainable transport, demonstrating significant efforts to make sustainable travel choices easier for citizens. PT usage at large events was analysed, revealing that the metro was the primary PT mode for leaving the Mad Cool festival, with usage 30 times higher than on a typical night. Extending the metro timetable and offering a shuttle service were crucial in reducing motorised trips. EMT has implemented an initiative of "free bus service" on special days aiming to shift users from private vehicles to public transport by providing a high-quality experience during these free days and thus increasing the number of regular bus users. EMT's "free days" program has shown spectacular results in terms of demand: since 2021 and until January 2025, more than 60.5 million passengers benefited from the free services on special occasions (i.e. Black Friday, etc.) during the 60 free travel days, distributed over 22 periods - and the measure has benefited more than 12.5 million non-regular users of public transport free services on special occasions (i.e. Black Friday, etc.) during the 52 free travel days, distributed over 18 periods.

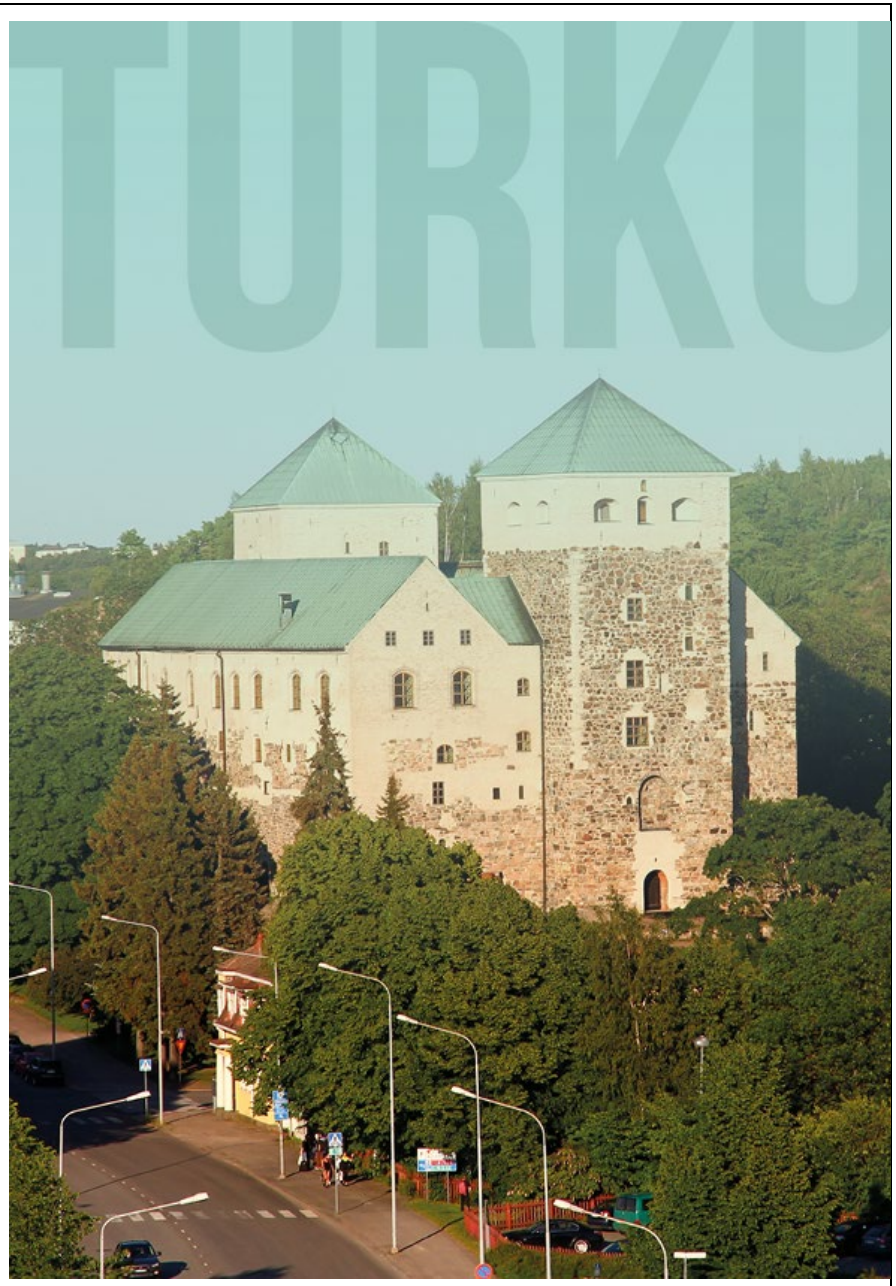
Map of the Mad Cool Festival that took place in Madrid from 6 to 8 June 2023

LESSONS LEARNED

It is difficult to evaluate the impact of public campaigns but the results in terms of people reached were very good. Clear communication at public transport stops and on social media proved to be most effective in increasing awareness of Green Routes. Large events are key opportunities: events like Mad Cool and European Mobility Week highlighted the importance of tailored communication to promote sustainable travel options, showcasing improvements in public transport coordination and outreach.

Poster of the European Mobility Week, that took place in Madrid from 16 to 22 September 2024

24



T1: SUSTAINABLE TRAVEL CHAINS FOR A COMPLETE REGION

AIM

The Regional Council of Southwest Finland aimed to enhance governance of sustainable regional transport, promote multimodality and sustainable travel chains and subsequently decrease CO_2 emissions in the Southwest Finland region.

RESULTS

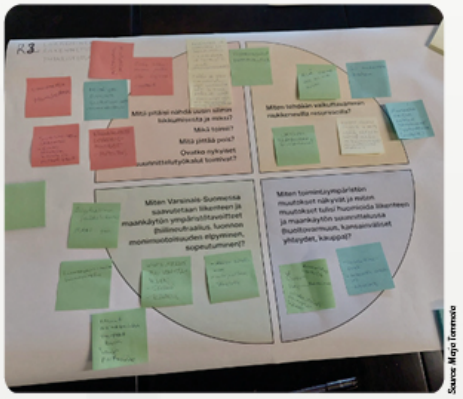
In Turku, options for a governance structure model were created that support sustainable mobility development and the achievement of a common understanding between the municipalities in the region on the planning of the regional train network. Citizen acceptance of regional rail transport increased. The Turku regional SUMP is in the preparatory phase and will be updated during 2025–2026 together with the Turku Region Structural Model. Data from Southwest Finland shows a decrease in car usage and an increase in bike trips, although walking trips have declined.

LESSONS LEARNED

Good communication, cooperation with stakeholders, and the active participation of inhabitants are integral to enhancing the regional governance of sustainable transport. Interaction and debate are of the essence in getting municipalities to pull together and find a solution that fits all. To gain citizen acceptance, clear and cohesive communication is needed to present needs and challenges in a way that is easily understandable for all.

Source: Maija Tarmasto

Regional SUMP planning took place at the regional partnership forum in June 2024



Source: Maija Tarmasto

The forum workshop on the regional SUMP

T2: IMPLEMENTING MOBILITY HUBS IN TURKU REGION

AIM

Foster new mobility services in the Turku region and Southwest Finland through collaboration between the City of Turku, the Regional Council of Southwest Finland, and private companies. The focus was to create preconditions for successful services within multimodal hubs, enhancing regional connectivity and sustainable travel chains.

RESULTS

A multimodal mobility hub was established in Turku involving five different mobility operators and a range of pilot services:

- Walk-in Bike Maintenance: Implemented by Fillaritalli, the free bike maintenance pilot proved extremely popular, with citizens queuing for services for their bikes after the winter season.
- Luggage Storage Lockers: Installed at Turku's main bus station, with user satisfaction surveyed via QR codes on locker doors and through a general hub survey.
- Physical Signage: New signposts were designed and ordered for installation on the long-distance arrivals platform to improve navigation.
- Online Guidance Map: Provided by Citynomadi, the map helps users navigate the bus station and includes an audio guide for the visually impaired.
- Cycling Equipment Vending Machine: Launched in November 2024 at the bus station, offering items such as brake pads, pedals, lamps, and locks for cyclists.

In Loimaa and Uusikaupunki following services were piloted:

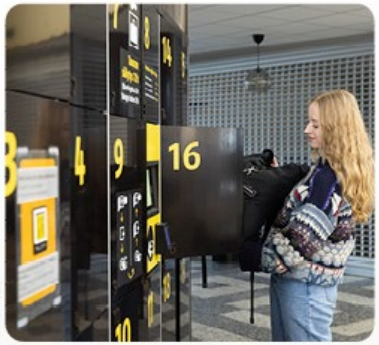
- Loimaa City Bike Trial: A four-month trial from July to October 2024, featuring 20 Donkey Republic bikes operated by KaaKau. The bikes were used 147 times by 56 individual users, with 10 users accounting for 43%of trips.
- Uusikaupunki On-Demand Bus Service (Vukikyyti): An online ordering service for custom bus itineraries launched in December 2023, with the service running for 10 months.

LESSONS LEARNED

Creating awareness and acceptance of new mobility services takes time, and involving citizens in the development process is essential for building trust and support. While free pilot services boosted popularity and satisfaction, they complicated the identification of sustainable business models and pricing strategies.

Both citizens and officials of the relevant authorities still lack a full understanding of the potential of multimodal mobility hubs and the range of services they can offer. To ensure future developments prioritise mobility services, it is crucial to involve knowledgeable, forward-thinking individuals in the design and optimisation of these hubs.

Additionally, collaboration with large-scale development projects needs to be intensified and formalised to allocate urban space for dynamic mobility solutions.



Source: Sari Eto

Storage lockers at the Turku bus station

Source: Sari Eto

Cycling equipment vending machine at the Turku bus station

Source: Fabio Sanca

Pop-up bike repair service at the Turku bus station

Source: Ilkka Cavén

The Loimaa City bikes


Source: Sanja Astonen

Signpost at the Turku bus station

T3: FLEXIBLE SOLUTIONS VIA MAAS AND ADAPTIVE PARKING

AIM

Develop a platform that combines event ticketing with the public transport system, fostering a systematic MaaS ecosystem through stakeholder engagement. The initiative sought to simplify multimodal travel and encourage the integration of public transport with events and adaptive parking solutions.

RESULTS

A new open interface for integrated event tickets and public transportation tickets was designed and two new event operators have already integrated tickets offered through it. A Park & Ride feature was designed and integrated into the app of the Regional Public Transportation. Mini-vans were piloted as a business model development during summer 2024 and the results show that 67% of the respondents would be willing to pay an hour-based charging fee or for daily usage of the service. A new layer for park and ride was developed into the parking hub platform of the city. It was piloted at the Tall Ships race event in the summer of 2024 and by combining free parking and public transportation in five different supermarket locations.

Source: Sari Eto

The park and ride location by K-Market Hirvensalo

LESSONS LEARNED

Clear communication of ticket integration benefits is essential for engaging event organisers and public transport providers. MaaS development requires systematic efforts and a strong business case to encourage stakeholder participation and data sharing. For parking hubs, improving platform usability and promoting data sharing from private operators are key. While private companies showed interest in Park & Ride (P&R) pilots, significant effort was needed to launch them, including securing locations, clear instructions and early marketing. Successful P&R requires logical placement, sufficient capacity, and consistent locations to build user familiarity.

Source: Iris Tri-Aarnio

Mini-van

Source: Iris Tri-Aarnio

Park & Ride Locations in Turku

T4: COMBINING PERSONAL TRANSPORTATION AND LOGISTICS

AIM

Piloting a mobility portal developed by Vinka that integrates personal transportation and logistics on a single platform, exploring the potential to combine freight and passenger movements.

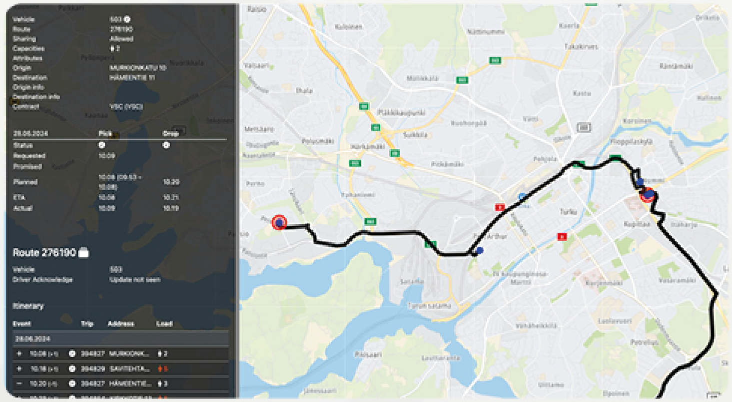
RESULTS

A mobility portal that combines the sharing of capacity of personal transportation and logistics on one platform was established. The portal facilitated simulations with data from transport and logistics operators, focusing on cost, fleet utilisation, and user satisfaction. Vehicle-kilometre savings per route were minimal unless combining routes from separate terminals, which added complexity. For food aid services, fleet sizes were reduced by 9-27% (from 8 to 5-7 vehicles), and utilisation increased from 50% to 80% through reorganisation. User satisfaction rated 4 out of 5 for ease of use, while scalability for passenger transport scored 3.3 out of 5, reflecting challenges in shared rides (scoring 2 out of 5).

The Food aid services piloted the logistics portal developed in SCALE-UP

LESSONS LEARNED

Securing high-level organisational commitment is essential for combined freight and passenger operations, especially considering legislative changes. Simplified onboarding and intuitive tools are needed for broader adoption, alongside committed actors for piloting. Unexpectedly, third-sector logistics pilots, like food aid services, proved valuable, showing potential to reduce fleet size by 9-27% and significantly improve utilisation rates.

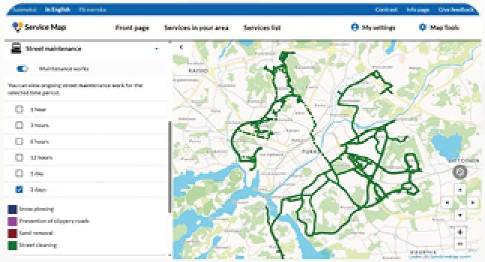


Example of a simulated passenger route using ride-sharing

T5: REAL-TIME MOBILITY DATA PLATFORM

AIM

Design, implement, and market an online Mobility Map as part of Turku's Service Map, using open-source code for easy scalability. Initially covering Turku, the platform is set to expand to the entire Southwest Region of Finland.



Mobility map

RESULTS

The Mobility Map was successfully launched in spring 2022 in Finnish, Swedish and English. By spring 2025, it encompasses over 40 data sets and showcases real time information, including data from service providers, maintenance and exceptional circumstances. Citizen awareness of the map reached 23% by June 2024, with steady growth in usage - 1,918 visits in 2023, rising to 3,219 by October 2024, marking a 68% increase in average monthly visits. The map has been embedded on the City of Turku and stakeholder websites, and user satisfaction averaged 3.3 out of 5.

LESSONS LEARNED:

Developing a Mobility Map is a long-term process, requiring time to collect and refine data for public use. The project accelerated the development of data pools and IoT solutions, highlighting data quality and updating needs. The map has proven valuable for helping politicians and citizens understand mobility trends and opportunities. However, managing a multi-stakeholder environment requires constant attention due to changing data sources. Having in-house developers streamlined progress, while external pressures to adopt ready-made tools challenged the recognition of open-source benefits.

Mobility map in use in the City of Turku

T6: MAKING CYCLING ACCESSIBLE AND FUN FOR ALL

AIM

Enhance the cycling skills of children and families in Turku, promoting sustainable transport modes through targeted interventions in schools and kindergartens and increasing the amount of cycling services available to all citizens.

RESULTS

The sustainable mobility activation model was tested in 5 educational units (schools, kindergartens) and scaled to 5 additional units, leading to notable improvements in cycling skills among 6, 7 and 8-year-olds (+12%, +8%, +7% respectively) and reduced skill variance in younger children (-29%, -8%). Satisfaction with public transport among school parents rose from 85% to 92%. Three new cycling services were piloted and scaled up: an e-cargo bike system with 650 users and 1,700 rentals (June 2023 until October 2024), two children's e-buses in active daycare use, and five bike repair stations across the Urban Node. The first public bike washing station opened in June 2024. The e-cargo bike service showed that 28% of users would have otherwise used a private car. While cycling skills improved, perception of cycling safety increased among parents but not among children. CO_2 emissions and vehicle kilometres decreased, though results were influenced by different respondent groups in baseline and follow-up surveys.

LESSONS LEARNED

Tailored approaches are essential, considering age, skills, and social norms in trying to affect the mobility behaviour in families with children. Data collection faced challenges, including low response rates and limited sensitivity to track behaviour change, emphasising the need for longitudinal research. Broad political and operational support, along with cross-departmental cooperation, is critical for success. The project increased children's enthusiasm and cycling ability, particularly benefiting weaker cyclists, with potential long-term impacts on behaviour. Organisational awareness of the benefits of active transport also grew, promoting interdepartmental collaboration and highlighting that mindset shifts, rather than safety concerns, remain the main barrier to cycling in Turku.

Photo: Jarmo Saloranta

Children's e-bike

SCALE-UP bikes in the City of Turku

Photo: Jarmo Saloranta

Improving the cycling skills of children

T7: SUSTAINABLE CONSTRUCTION AND LOGISTICS

AIM

Develop a Sustainable Urban Logistics Plan (SULP) with broad stakeholder involvement. The plan focuses on enhancing freight distribution processes toward carbon neutrality through electrification and biogas use. The measure also included showcasing sustainable logistics actions via social media, with a specific focus on event logistics. Additionally, a roadmap for fossil-free construction sites was created, aligning with Turku's Green Deal commitment to achieve 50% fossil-free construction sites and transportation by 2030.

RESULTS

Turku's SULP was successfully developed and approved in December 2024, though the timeline was delayed due to the extended SUMP process. The number of showcased sustainable logistics actions grew from 4 to 12, with further growth expected before project completion. A roadmap for fossil-free construction sites was also developed. A thesis estimated that 97% of pilot construction work could be completed using electric machinery, reducing 70.7 tonnes of CO_2 if powered by fossil-free electricity.

LESSONS LEARNED

Integrating SULP development with the SUMP fosters synergies, particularly with companies previously unengaged in mobility planning. Simplifying the SULP content is essential for clarity among politicians, stakeholders, and residents. Early and broad stakeholder involvement streamlines planning and implementation. For fossil-free construction sites, national-level collaboration and municipal coordination are crucial, with municipalities needing to demand emissions reductions from contractors and use comparable calculations. Small operators require support to invest in e-machinery, and while electric machinery reduces emissions, broader documentation and systemic changes are needed to fully achieve green construction goals.

Source: Iiro Ylä-Jarmila

Sustainable Urban Logistics in the City of Turku

Source: Sari Eko

With SULP, Turku addresses the challenges of increasing urban logistics by improving the smooth flow of logistics

T8: NUDGING WITH INCENTIVES AND ENCOURAGEMENT

AIM

Promotion of active commuting and sustainable mobility in the City of Turku through the implementation of various incentive schemes and nudging strategies.

RESULTS

Since spring 2023, 11 nudges and incentive schemes were implemented, exceeding the initial number, in order to promote sustainable mobility, with several becoming permanent due to their success:

- **Lendable Public Transport (Föli) Cards:** Introduced in three libraries from October 2023 to March 2024, this initiative allowed residents to borrow public transport cards, significantly increasing access to sustainable travel. Due to positive feedback and high usage rates, the program became a permanent service covering six municipalities.
- **Bike-Sharing with Sports Passes:** Launched in May 2024, this initiative integrated *Föliäri* bikes into sports seasonal passes, encouraging physical activity and sustainable commuting simultaneously.
- **Polar Bear Campaign:** Designed in 2023 and scaled up in 2024, this campaign focused on promoting sustainable commuting among kindergarten and school children. It used engaging educational materials to raise awareness about eco-friendly travel habits from a young age.
- **Bike Skill Path Installation:** In October 2024, physical bike skill elements were installed near a local school, helping children develop safe cycling habits and improving their confidence in active commuting.

Source: Espen Cameron

The Lendable Public Transport (Föli) Card nudge was so successful that it has now become a permanent service.

- **Mobility Profile Test:** Inspired by similar initiatives in Antwerp, this tool was launched in April 2024 to assess individual mobility preferences. Results were used to develop further actions for target groups and to deliver targeted newsletters promoting sustainable transport options.
- **Targeted Mobility Newsletters:** Based on the mobility profile test, two targeted newsletters were sent to subscribers in June and October 2024, providing personalised information on sustainable transport options.
- **E-Cargo Bike Promotions:** Promo codes for e-cargo bike rentals were distributed via the mobility newsletters in June and October 2024, resulting in increased trial and use of the service.
- **City Personnel Mobility Nudge:** In October 2024, brochures promoting sustainable mobility options were distributed to City employees, encouraging them to adopt greener commuting habits.
- **Housing Company Nudges:** Three targeted nudges were directed at VASO housing company residents in late 2023, focusing on encouraging sustainable transport. This initiative also served as the basis for an academic thesis.
- **Children's Bike Trial Program:** Launched in early autumn 2024, this initiative offered families a free trial period for leasing children's bikes, encouraging active transportation among young riders.
- **NastaPiste/PinPoint Winter Mobility Nudge:** This campaign promoted active winter commuting through occupational health clinics in early 2024 and was repeated with some changes in 2025 due to its potentiality.

These diverse initiatives not only encouraged sustainable commuting habits across different age groups and demographics but also demonstrated the potential of combining small-scale nudging strategies with broader mobility goals.

LESSONS LEARNED

A clear vision, realistic goals, and a motivated, adaptable team with defined roles are key for implementing multiple activities efficiently. Engaging enthusiastic, value-aligned partners and leveraging comprehensive data and cooperation networks are essential for planning and stakeholder engagement. While the long-term impacts of nudging are difficult to assess, systematic use of incentives may lead to lasting mobility habit changes, especially when combined with other activities. The measure also highlighted the importance of collecting data even for short-term campaigns to evaluate and optimise resource use for maximum impact.

Source: Suvi Ilo

Föliäri are Turku's shared-use bikes, which were utilised in nudging initiatives

T9: MOBILITY GUIDANCE AROUND EVENTS AND FESTIVALS

AIM

Developing an e-mobility guidance concept for the city of Turku and piloting guidance elements for events. Special emphasis was placed on improving accessibility for vulnerable groups, such as the visually impaired, with a target of piloting five guidance solutions.

RESULTS

Five smart mobility guidance solutions were piloted at large events using digital services like mobile apps and digital guidance screens. Awareness varied, with only 20% of visitors noticing e-guidance screens at Kesärauha and 43% aware of Park & Ride services at the Tall Ships Race (TSR). Overall satisfaction with the guidance elements was 58%. Sustainable mobility choices varied by event type: walking and cycling were popular at adult-focused events like Kesärauha while walking and private car use dominated larger events like TSR. Guidance integration for the visually impaired scored 1.9 out of 5, but valuable feedback will improve future implementations. Physical accessibility for deficiency groups received positive feedback, with 57% very satisfied and an average score of 3.4 out of 5. Most attendees reported feeling safe when arriving at events.

Source: Fiimmi Hyppä

Movable guidance screen at Kesärauha event (2023)

LESSONS LEARNED

Event organisers often prioritise internal logistics over mobility guidance, highlighting the need for city-led support and practical guidelines. Increasing awareness within Urban Nodes units is crucial for establishing a city-wide e-guidance strategy. Engaging vulnerable groups, especially the visually impaired, proved essential in identifying practical improvements for both digital and physical accessibility. The measure also created momentum within the Urban Node, with pilot experiences informing future practices and contributing to Turku's broader digital guidance framework.

Source: Hanna Aaltonen

A panel of visually impaired individuals gathered to evaluate the guidance at the Tall Ships Races 2024 event.

T10: WINTER AS AN ACTIVE MOBILITY SEASON

AIM

Promote active lifestyles during winter by piloting different ways of activating citizens and fostering positive perceptions of winter as a viable mobility season, supported by innovative branding and community engagement.

RESULTS

A winter square concept was piloted during the winter of 2022-23 and a street concept in Runosmäki during the winter of 2024. Five measures were tested with stakeholder involvement, yielding an average acceptance score of 73% but lower satisfaction at 53%, indicating the need for deeper engagement. The number of winter events increased from 8 to 10. Winter cycling's modal share rose from 11% to 16%, while daily walking decreased from 58% to 53%. *Telraam* data from the Runosmäki winter street suggested that localised winter activities could boost sustainable travel even in harsh weather. Perceptions of walking conditions slightly improved (+1%), while cycling conditions saw a minor decline (-1%), though overall satisfaction with City efforts remained steady.

Source: Eetu Sorsa

Sledding equipment was available for rent in Impivaara

Source: Eetu Sorsa

Sledding equipment at the Impivaara sled rental

Source: Iiris Tikkanen

Cycling agents reported winter conditions through the application

LESSONS LEARNED

Integrating winter mobility into Urban Node programmes rather than creating standalone strategies proved effective, though targeted engagement, especially with vulnerable groups like children and the elderly, remains essential. Localised winter activities near residential areas can boost sustainable travel, but more focused efforts are needed to sustain walking rates. The results highlight the importance of continuous communication, stakeholder involvement, and adjusting measures based on community feedback to maintain high satisfaction and engagement levels.

SCALE-UP PARTNERS

38

39

SCALE-UP
User-Centric & Data Driven Solutions for Connected Urban Poles

This project has received funding from the European Union's horizon 2020 research and innovation programme under grant agreement No. 955332

ScaleUpProject

scaleup-project

www.scale-up-project.eu

Conclusions

The handbook contains per measure a detailed overview over why the measure was necessary in the local context and the problem it was supposed to solve, as well as the actual real-world impact it has had on the local mobility and in some cases logistics landscape.

The handbook can also be printed and distributed as a brochure to the SCALE-UP Fellow Cities and beyond, inspiring a wider network of European Urban Nodes with ideas on how to approach key mobility challenges of the 21st century and approaches for scaling up exiting sustainable mobility offerings beyond the usual interventions/measures deployed in city centres.

The handbook contents are partially based on and informed by previous (public) deliverables D5.2 (Final Report on Implementation of accessible and affordable innovative clean and safe mobility solutions), D6.2 (Final Report on Implementation of behavioural change with a focus on active and healthy modes solutions) and D7.8 (Impact and Process evaluation of the SCALE-UP measures 2). All of these deliverables as well as the Urban Nodes Handbook are available on the public SCALE-UP website.