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 Cleaner and better transport in cities

ECCENTRIC



D5.3 Implementation Report WP5 Cluster 1:

Reorganising public transport network

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Abstract

Technical description of the demonstration measures dealing with the *Reorganisation of public transport services* regarding the experiences of all the measures developed in cities. The document includes a description of the implementation process and the analysis of the main barriers and drivers encountered during the preparation and implementation phases.

CLUSTER 5.1, Reorganising public transport network

Measures 5.1, 5.2, 5.3, 5.4, 5.5 and 5.6

Cluster Partners

Organisation	Country	Abbreviation
Consortio Regional de Transportes de Madrid	Spain	03.CRTM
Empresa Municipal de Transportes de Madrid S.A.	Spain	04.EMT
Stockholms Stad MF	Sweden	09.STO
Landeshauptstadt München	Germany	16.LHM
MVG_Münchner Verkehrsgesellschaft mbH	Germany	16.MVG
City of Turku	Finland	21.TUR
Varsinais-Suomen Liito (Regional Council of Southwest Finland)	Finland	22.VSL
Turun Kaupunkiliikenne OY (Turku City Traffic Ltd.)	Finland	23.TUKL
Turun Ammattikorkeakoulu OY (Turku University of Applied Sciences)	Finland	25.TUAS
Obshtina Ruse (Municipality of Ruse)	Bulgaria	27.RUSEMUN
Club "Sustainable Development of Civil Society"	Bulgaria	28.CSDCS

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List of Acronyms

ACM	Adaptive City Mobility
API	Application Programme interface
ca	<i>circa</i> (around)
CO ₂	Carbon Dioxide
D	Deliverable
DoA	Description of the Action
DMP	Data Management Plan
EC	European Commission
ECOMM	European Conference on Mobility Management
EU	European Union
EV	Electric Vehicle
e.g.	<i>exempli gratia</i> (for example)
FCEV	Fuel Cell Electric Vehicle
GA	Grant Agreement
H2020	Horizon 2020
HOV	High Occupancy Vehicle
IA	Innovation Actions
i.e.	<i>id est</i> (that is to say)
ICT	Information and Communications Technology
IEE	Intelligent Energy Europe
IHFEM	Integrated Action Program for the Promotion of Electromobility in Munich
IT	Information Technology
KoM	Kick-off Meeting
KPI	Key Performance Indicator
LBG	Liquid Biogas
LDM	Local Dissemination Manager
LEM	Local Evaluation Manager
MaaR	Mobility as a Right
MaaS	Mobility as a Service
MER	Measure Evaluation Report

ML	Measure Leader
MR	Measure Report
MS	Milestone
NGO	Non-Governmental Organization
NOx	Nitrogen Oxides
OCG	Observers City Group
P&R	Park & Ride
P2P	Peer to peer
PAC	Political Advisory Committee
PAG	Political Advisory Group
PDM	Project Dissemination Manager
PER	Process Evaluation Report
PEM	Project Evaluation Manager
PMG	Project Management Group
PT	Public Transport
SM	Site Manager
SUMP	Sustainable Urban Mobility Plan
WP	Work Package
WPL	Work Package Leader
WS	Workshop
WT	Work plan Table

Executive Summary

The main objective of WP5, which integrates nine measures in the cities of Madrid, Munich, Stockholm, Ruse and Turku, is to demonstrate, in the outskirts of the different demo cities, efficient and clean public transport solutions in order to increase attractiveness and conditions for sustainable mobility in peripheral districts. To achieve this goal, these demos will implement different measures with the following specific objectives:

- Increase the use of public transport in the consolidated districts out of the city centre.
- Increase the efficiency and environmental performance of the public transport fleet, and consequently reduce energy consumption and associated emissions.
- Accelerate the introduction of e-mobility in cities.

This report gathers and summarises the experiences and lessons learned from Task 5.2 “*Procurement and implementation*” between February 2017 and August 2018 (M6-M24). The document includes a description of the implementation process and the analysis of the main barriers and drivers encountered during the procurement and implementation phases

Cluster 1 demonstration actions are focused on the reorganisation of public transport services; it includes six measures that will be implemented in the cities of Madrid, Munich, Ruse, Stockholm and Turku.

Information was provided by Measure Leaders (ML) by email through the measure reporting templates during October-November 2018. The MLs were asked about the same questions in order to have homogeneous information for this report.

Detailed background of the measures, as well as results from Task 5.1 “*Research and measure planning*” are detailed in D5.1 “Preparing for an efficient and clean public transport system”.

The following chapters outline the procurement and implementation activities for efficient and clean public transport solutions in Madrid, Munich and Turku as well as the conclusions and recommendations of this phase regarding success factors and barriers at different levels.

1 Introduction

Transport is essential for economic growth and well-being, as well as for the quality of life in urban and metropolitan areas, in order to encourage social cohesion, addressing health problems and adapting to demographic changes.

Traffic jams, air pollution, safety and noise pollution are examples of problems commonly shared in European cities. In addition to the direct impact of traffic, urban transport also affects social development, social exclusion and accessibility for people with reduced mobility. The need for sustainable transport is increasingly recognised and receives more and more attention. Therefore in a context like the current one, an integral approach to mobility, as well as the main factors that condition it, is needed.

The promotion of sustainable forms of movement inevitably goes through to guarantee a system of efficient public transport, which represents a real alternative to private vehicles, as well as the promotion of non-motorised modes (on foot and by bicycle) and new mobility services (car, motorbike and scooter sharing, MaaS, etc.).

European cities face the challenge of improving mobility, guaranteeing accessibility and creating transport systems of high quality and efficiency, while reducing traffic jams, pollution and accidents.

In this regard, it is worth highlighting the European Parliament Resolution on a European Strategy in favor of low-emission mobility, adopted in December 2017 in which it is stressed the need for a greater contribution of the transport sector to climate objectives (UE transport policy: by 2030, goal of reducing greenhouse gas emissions by 20% with respect to the levels of 2008).

Currently, the main common challenges of European cities are to relieve central areas through clean and efficient urban logistics, as well as to increase the attractiveness and sustainable mobility of suburban districts. To tackle these common challenges, the cities of Madrid, Munich, Stockholm, Ruse and Turku have formed the CIVITAS ECCENTRIC consortium.

According to the aforementioned challenges, the overall objective of the CIVITAS ECCENTRIC project is *“to demonstrate and test the potential and replicability of integrated and inclusive urban planning and sustainable mobility measures that increase the quality of life of all citizens in urban areas, with a particular focus on suburban districts and new developments and the clean organisation of urban freight logistics”*.

WP5 will implement nine measures that could be grouped into two main clusters:

- *Cluster 1, Reorganising public transport network:* high level PT services corridors, speed up core bus routes, reorganisation of bus lines and provision of new lines and services (adaptive public transport priority and night services).

This cluster also includes the provision of bike-sharing and car-sharing schemes as well as elements of the public transport chain.

- *Cluster 2, Testing and operating clean and silent vehicles* (fully electric, Hybrid and CNG buses) in normal operation conditions.

This cluster also includes the implementation of (e-)mobility stations, by combining public transport, car-sharing and bike-sharing in a new housing area of one of the demo cities.

Cluster	Measure	City	Partner(s)
1	MAD 5.1	Madrid	CRTM, EMT
	STO 5.2	Stockholm	STO
	RUS 5.3	Ruse	RUSEMUN, CSDCS
	RUS 5.4	Ruse	RUSEMUN, CSDCS
	TUR 5.5	Turku	TUR, VSL, TUAS
	MUC 5.6	Munich	LHM/MVG
2	TUR 5.7	Turku	TUR, TuKL, TUAS
	MAD 5.8	Madrid	EMT, CRTM
	MUC 5.9	Munich	LHM

Table 1: Overview of the measures included in WP5

2 Explanation of the work implemented in WP5 Cluster 1: Reorganising public transport network

Keeping in mind that this Deliverable “*Implementation report: Reorganising public transport network*” focuses on the findings of Task 5.2, regarding the procurement and implementation phases associated to the demonstration actions developed in cities, the following issues have therefore been addressed:

- The launch of the tendering and procurement process of the measures.
- The actual implementation of the pilot projects.
- The participatory processes accompanying the measure development.

WP5 cluster 1, focused on reorganising public transport network, includes six measures that will be implemented in the cities of Madrid, Munich, Ruse, Stockholm and Turku:

- *MAD 5.1: High level PT service corridors in peripheral districts in Madrid*

This task will provide high level of PT service in the peripheral demo area of Madrid. The measure will implement an approximate 3.5 km stretch of BRT corridor along the demo area where different options for segregation (physical/flexible/virtual), priority (using IT tools) and enforcement (IT tools/video cameras) will be analysed. This new corridor will be connected to intermodal facilities to ease modal transfer between PT services, and bus stops adapted in order to provide boarding times in line with the high level of service standards. Additionally, the existing routes will be redefined to accommodate to the new high level of service corridor.

Local partners: CRTM, EMT.

- *STO 5.2: Speed up core bus routes*

This measure will enable the core bus routes in the outer areas of Stockholm to move faster and with more reliability by implementing several measures: for example, a better monitoring of illegally parked vehicles, street improvements, introduction of bus lanes on some line sections, removal of stops, regularisation and optimisation of traffic signals.

Local partner: STO.

- *RUS 5.3: Analysis of PT demand and reorganisation of PT network in Druzhba*

This measure will provide demand-oriented, fast, regular and reliable public transport services in Druzhba demo area.

The implementation of the measure will consist of redefining and reorganising of public transport lines to balance the demand to the PT service offer. After that, the new transport scheme will be promoted.

Local partners: RUSEMUN, CSDCS.

- *RUS 5.4: Introduction of “Good Night” line to Druzhba*

This measure will provide public transport service during the night in Druzhba. The measure’s implementation will consist of the creation of the new night bus “Good night”; and the promotion of this new service, according to citizens’ demand.

Local partners: RUSEMUN, CSDCS.

- *TUR 5.5: Bike - sharing and Car - sharing Schemes*

Aiming to complement PT services, this measure will provide the first bike-sharing system in Turku, as well as planning the car-sharing system for the coming future. A pilot bike-sharing system with 100 bicycles will be implemented together with a car-sharing scheme.

Local partners: TUR, VSL, TUAS.

- *MUC 5.6: Replication of Smart E-Mobility concepts*

Within this measure the barriers, indicators and the best framework for the deployment of e-mobility in cities will be analysed. A particular focus will be on the integration of e-bikes (pedelecs) in a bike-sharing scheme (MVG Rad) as part of a multimodal public transport system and solution for medium distances in a city as well as its surrounding area.

Local partners: LHM / MVG.

2.1 MAD 5.1 High level PT service corridors in peripheral districts in Madrid

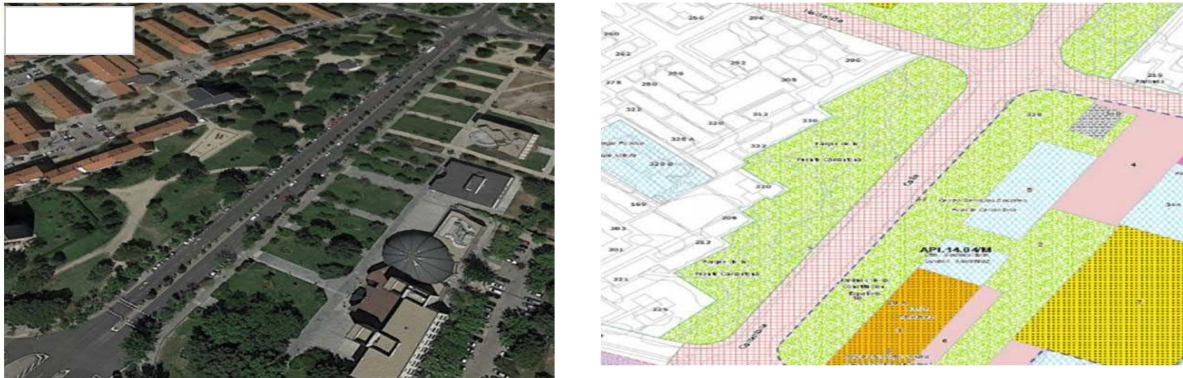


Figure 1: Corridor Area

This measure is in fact the first step for the implementation of high level of service bus corridors in the outer city areas, partly included in the city lab (South-East Corridor). The measure will be critical for the subsequent design and implementation of the whole corridor. Therefore, a pilot section of approximately 3.7 km will be implemented connecting the living lab with the districts of Moratalaz, San Blas-Canillejas and Ciudad Lineal, all of them in the Eastern periphery of Madrid.

Different options for segregation (physical/flexible/virtual), priority (using IT tools) and enforcement (IT tools/video cameras) will be analysed. This new corridor will be connected to intermodal facilities to ease modal transfer between PT services and bus stops will be adapted in order to provide boarding times in line with the high level of service standards. Additionally, the existing routes will be redefined to accommodate to the new high level of service corridor.

Expected impacts

The measure is expected to achieve the following quantified impacts:

- An increase in bus patronage.
- An increase in commercial speed in the pilot section (by 10%, reaching over 13 km/h).
- An increase in reliability (regularity) levels (by 9%, reaching an average level of 94%).
- To contribute to the city level objective of increasing modal share for PT by 4%.
- To contribute to the Air Quality Plan objectives to reduce emission levels and improve air quality: 30% reduced energy consumption and emissions.

2.1.1 Introduction

Currently, standard bus services provided in the peripheral suburbs of Madrid show speed data well below the city average, due to traffic congestion and illegal parking. There is significant potential to increase commercial speed through traffic light optimisation as, on average, some 25% of the journey time is stopped waiting for a green light.

At the city level, the measure will develop some of the actions envisaged in the Madrid's Air Quality Plan (2017) and Sustainable Urban Mobility Plan (2013), as well as the Strategic Sustainable Mobility Plan of the Madrid Region, Vision 2025 (the Regional Transport Plan), in what refers to the expansion of the bus network in peripheral districts. It will, therefore, contribute to the city's goal of increasing the modal share of public transport, reduce emission levels and thereby improve air quality.

At the strategic and measure level, the corridor will facilitate the identification of the most suitable design and operational options to improve the quality of bus services provided in the southern and eastern periphery, increasing the environmental performance, reliability and speed of public transportation. Overall, the corridor is expected to provide higher quality and more attractive bus services, competitive with private cars, and result in an increase in public transport patronage.

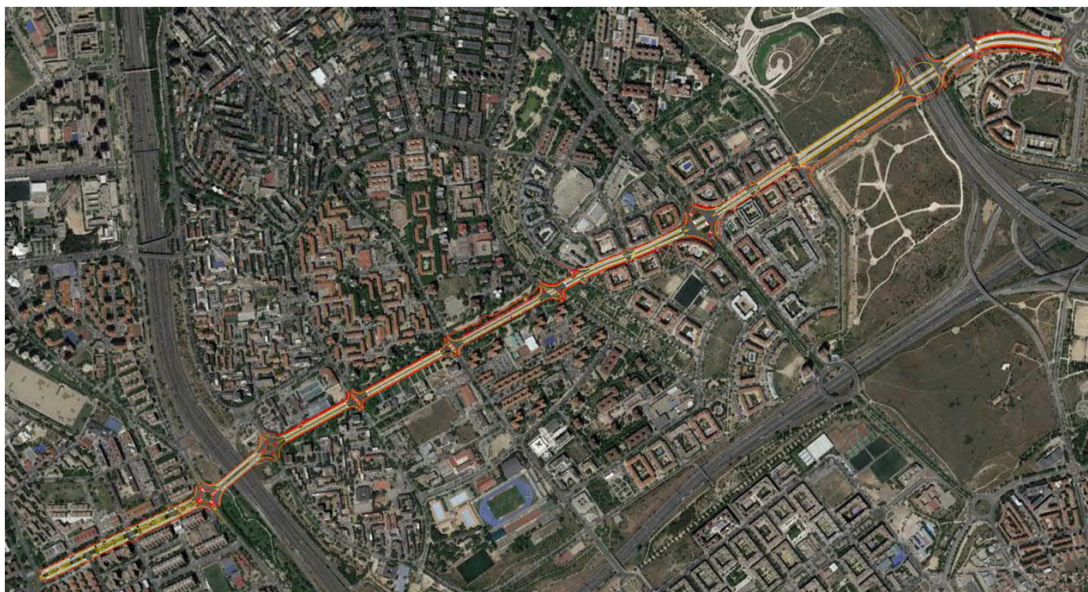


Figure 2: Layout of the corridor

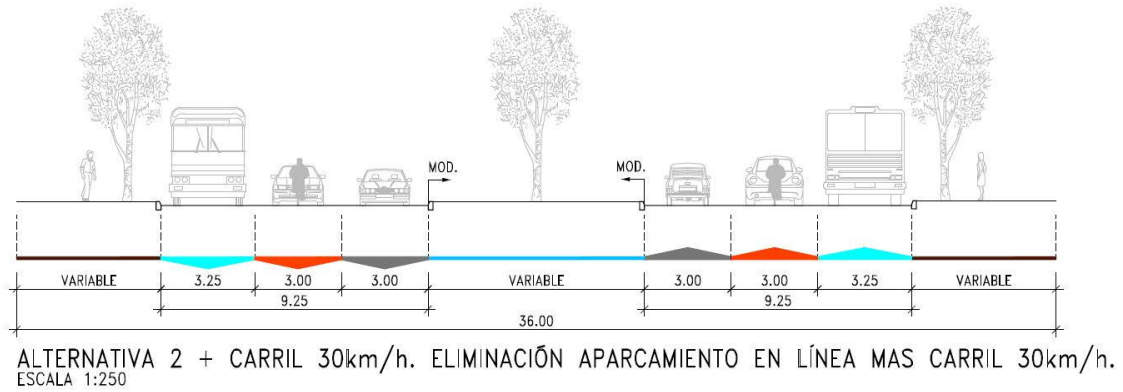


Figure 3: Cross-section of the corridor



Figure 4: Areas to enable parking on both sides of the A-3 Motorway

2.1.2 Implementation

Implementation phase

Relevant milestones accomplished during procurement phase:

- Drafting and approval of the Terms of Reference (ToR) for the completion of the construction project of the pilot section phase took place between July and November 2017.
- On 26th December 2017, date of publication of the notice for public call for tenders in the Madrid Region Official Gazette, the tendering process was launched.
- The contract was awarded on 3rd April 2018 and was signed on 12th April.
- Drafting of the construction project was carried out between May and September 2018.

Main changes were made from the original plans

Finally this measure is not going to be implemented within the Eccentric project. It will be impossible to construct the works on time by the City Council due to the complex administrative procedures.

Stakeholders involved in the different implementation steps

It involved the Public Transport Authority (CRTM), the City Council (MAD) and the municipal bus operator (EMT).

Infrastructure required for the solution to function

Not applicable (no particular infrastructure is required for the solution to function).

Other related sustainable mobility solutions

The *Strategic Sustainable Mobility Plan of the Madrid Region, Vision 2025* (prepared in 2014) includes the expansion of the bus-lane network, implementing segregated bus lanes in the urban periphery. This measure is also included in the recent Air Quality Plan (2017) and in the Sustainable Urban Mobility Plan of the city (2013).

Regarding ECCENTRIC project measures the buses serving the pilot section of the corridor were expected to include at least 6 hybrid buses from measure MAD 5.8.

Timeframe

Procurement and implementation phase really began on 26th December 2017 date of publication of the notice for public call for tenders in the Madrid Region Official Gazette and was finished in September 2018 with the completion of the construction project by CRTM and its submission to the municipality and EMT.

2.1.3 Business model and contractual partnerships

- Madrid City Council is the administration responsible for the works that are executed in the streets of Madrid. And also has the responsibility for maintenance.
- For the implementation of the measure (if so) Madrid City Council will put out to public tender the construction works of the corridor, according to the Spanish Public Procurement Law.
- On the other hand, EMT the company that operates the public bus services in Madrid is part of Madrid City Council.
- The implementation of the measure will be financed by Madrid City Council.

2.1.4 Critical challenges and success factors

Key challenges

- As it was stated in D5.1 the final agreement regarding the specific section of the corridor to be projected, based on the different options, was time-consuming. And, therefore, the deadline for drafting the construction project was reduced, compared to the initially planned, in order to meet the deadlines agreed with the EC.
- Another important challenge has been to meet the requirements of the different stakeholders involved.

2.1.5 Lessons learned from implementation/replicability

Not applicable.

2.1.6 Recommendations

- Commitment and cooperation between all the Administrations involved is a key point for the success of the action.
- The action to be implemented must be in line with the general strategy of the different administrations involved.
- Get all partners to work in the same direction regarding the implementation of actions.

2.2 STO 5.2 Speed up core bus routes



Figure 5: Bus route 178



Figure 6: Bus route 179

This measure will enable the core bus routes in the inner city of Stockholm to move faster and more reliable by implementing several measures. The measure working with two of the core buses in the outer urban area, route 178 and 179. The project systematically implemented minor measures at low costs if they are.

The main action areas that this measure is focusing on are:

- Improved regularity.
- Improved monitoring of illegally parked vehicles.
- Increased priority in the street space.
- Bus priority at traffic signals.
- Improved road interchange, short stop time.
- Revise bus stop design and modes.

Expected impacts

The bus lines 178 and 179 will be more attractive if we reach the goals of this project, that is decreased congestion on the buses, faster speed and regularity.

2.2.1 Introduction

The suburban core bus routes fill an important function in connecting places less well served by the metro and other rail networks. The buses do not have much on-street priority and are therefore affected by congestion caused by other motor vehicles.

The City of Stockholm sees potential to improve the core buses in the urban area to give better regularity, reduce travel times and have less crowding, etc. This can in turn relieve pressure on the rail network and stations. The implemented measure will make the buses more attractive compared to prior CIVITAS ECCENTRIC.

In summary, the actions on both of the core buses imply:

- Around 1,000 meters of new bus lanes.
- About 17 parking places eliminated.
- New regulation in order to increase bus priority in the street space.
- Improved monitoring of illegally parked vehicles.
- Bus priority at traffic signals.
- Revise bus stop design and modes.

2.2.2 Implementation

Implementation phase

Key steps from the drawing board to actual implementation:

- Drawing up the construction documents.
- Have the construction documents revised and approved.
- Make contact with the procured road contractor regarding the implementation of the measures.
- The road contractor goes through the documents and produces plans for implementation, such as, for example, traffic arrangement plans.

Implementation is ongoing. It will be ready at the end of December 2018.

Main changes were made from the original plans

The construction was scheduled to take place in the summer of 2018 and to be completed by August of 2018.

Stakeholders involved in the different implementation steps

Various departments at the municipality of Stockholm have been part of the planning, revising and implementation of the measure. One example of a department that has been involved is the department responsible for ensuring redirection signage is legally binding. Also the Public Transport Authority, the Transport Administration and primarily the company Arriva has been involved by providing information and working out temporary traffic solutions for the construction period.

Infrastructure required for the solution to function

Road infrastructure.

Timeframe

It took about three months to implement the planned measures (except the construction of one traffic island that is delayed).

2.2.3 Business model and contractual partnerships

The municipality of Stockholm owns the road infrastructure in the area the measures are regarding and thereby also has the responsibility for maintenance after implementation. For the public transit shelters however, the ownership and therefore the maintenance responsibility lies with Arriva and the Public transport administration.

For the implementation of measures along the street the municipality of Stockholm has procured a road contractor by calling off against a framework agreement.

Arriva, the company that operates the bus services in the area, is procured by the Public transport administration, which is part of the Stockholm County Council.

Both actors above are procured according to the Swedish Public Procurement Act.

All measures are financed through tax revenues. The municipality of Stockholm has also sought government funds for the implementation.

2.2.4 Critical challenges and success factors

Key challenges

- Unlike the core buses in the inner city, the core buses in the outer areas in Stockholm have more problems with social issues such as threats and violence that delays the buses. But to solve this was not included in our mission.
- Get all partners to work in the same direction regarding the implementation of actions. Questions about this have been raised to the steering group.
- The most critical part of the project was keeping the time plan and implementing all the measures before the end of August. After August the evaluation phase was meant to begin, but the measures were not done on time. A new time plan for the implementation and evaluation had to be drawn up based on the new prerequisites.

Key success factors and minimum requirements

The most important success factor is for all project members to work towards the same goal.

2.2.5 Lessons learned from implementation/replicability

- One advice for similar endeavours is for all parties to be clear on what their responsibilities are. It is also important that there is a coordinated time plan that is well-enchored with all the project members.
- Being clearer about what needs to be done at what time.

2.2.6 Recommendations

For future reference: a clear division of responsibilities and follow-up on measures are important aspects which should be continuously monitored.

2.3 RUS 5.3 Analysis of PT demand and reorganisation of PT network in Druzhiba

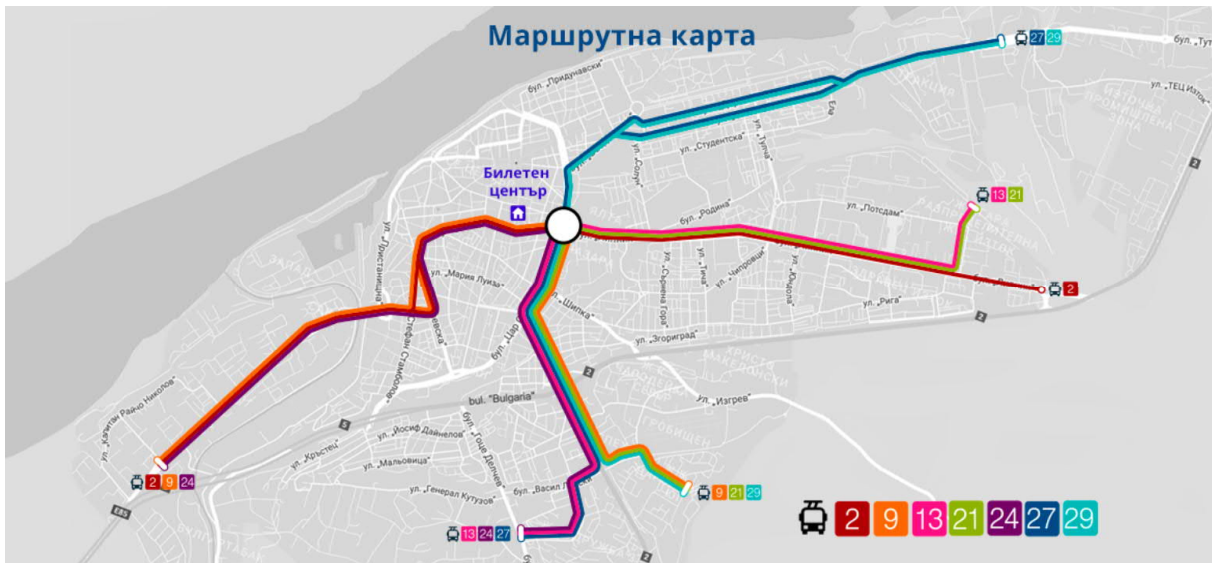


Figure 7: Current Trolleybus Network in Ruse © Ruse Municipality

This measure will provide demand-oriented, fast, regular and reliable public transport services to and from the city centre to the district of Druzhiba. Implementation of the measure will involve redefining and reorganising public transport lines (trolleybus and bus), in order to improve the balance between demand and supply of public transport services. The analysis of public transport demand will provide data for passenger flows and will enable local transport planners to establish a new transport scheme for the targeted area with appropriate timetables in order to meet the needs of more passengers. Finally, the new transport scheme will be promoted.

Expected impacts

- Increased use of public transport & Decreased use of private cars (impact on society).
- Decreased emissions by public transport (impact on environment).
- Increased energy efficiency of the public transport (impact on energy consumption).

2.3.1 Introduction

The public transport service connecting the peripheral district Druzhiba with the centre of Ruse and its industrial zones (around the city centre) is rather slow and unreliable. A large share of the people living in the peripheral districts, like Druzhiba, use their own cars or taxi services to travel to the city centre or to work.

Druzhiba is Ruse's 'living lab' (or demonstration/pilot area) in CIVITAS ECCENTRIC, and one of the entrances to the city centre with high volumes of traffic.

This measure implemented by the City of Ruse aims at increasing the use of public transport by 20% in the outskirts of the city in the long term, to create a new transport system in order to provide demand-oriented, fast, regular and reliable public transport services in the medium term and to collect relevant data about Public Transport demand on short term. It also aims at decreasing the use of private cars by 20% and the associated emissions produced by these cars.

2.3.2 Implementation

Implementation phase

Activities carried out so far:

- The result of the research and planning phase is the technical specifications developed for updating Ruse's Municipal Transport Scheme. The analysis made by the Ruse implementation team led to the decision of upscaling the measure to encompass the whole territory of the municipality. Only this way can the Druzhiba district be better connected by public transport to the rest of the city. Thus, reorganisation of the public transport lines in Druzhiba is financed by the CIVITAS ECCENTRIC project, while the Municipality is financing the work being carried out for the rest of the territory.
- Following a process of public procurement (launched in August 2017), Ruse contracted an external company to update the Municipal Transport Scheme. The contract has a maximum of 12 months to deliver the results of the service, including:
 - Collection and analysis of baseline information on the current state of play.
 - Preparation of an updated transport scheme for Ruse.
 - Organising and conducting discussions with relevant stakeholders and public discussion of the proposal for updating the transport scheme.
- Information about the measure and its promotion to various stakeholders, and the general public, is being undertaken via the measure RUS 2.11 *Information, Training and Awareness Raising* implemented in parallel to this one.

Nine months are planned for the demonstration and monitoring phase of the measure.

Main changes made from the original plans

Regarding Implementation phase, there are no changes from the original plans. However, as a consequence of the analysis made in the research and planning phase the decision of upscaling the measure to encompass the whole territory of the municipality was taken.

Stakeholders involved in the different implementation steps

The different stages of implementation of this measure imply the involvement of various stakeholders. In the phase of collection and analysis of baseline information, we have asked for information and feedback from citizens living in the district and in the municipality as a whole, companies, schools, hospitals, NGOs, etc. They were involved in the process through questionnaires, round tables and discussions, personal interviews.

Also, actively involved in the process were the experts working in the Transport Department of Ruse Municipality and the companies providing public transport services in Ruse. The final stage concerning the adoption of the new transport scheme also includes organising and conducting discussions with relevant stakeholders and public discussion of the proposal for updating the transport scheme.

Infrastructure required for the solution to function

No particular infrastructure is required for the solution to function).

Other related sustainable mobility solutions

This measure is interrelated with Measure RUS 5.4 *Introduction of “Good Night” line to Druzhiba* as the new public transport scheme will define the route of the new good night line and with Measure RUS 2.11 *Information, Training and Awareness Raising*.

Timeframe

Ruse Municipality launched in August 2017 the public procurement for the update of the whole transport scheme of the city, including the definition of the route of the Good night line of Druzhiba district (Measure RUS 5.4). The opening of the bids received was on 8th September.

After signing the contract for the service (29 June 2018), the chosen external consultant company has a maximum of 12 calendar months to deliver the results the results of the service (but is expected to finish earlier –around month 8), including:

- Collection and analysis of baseline information on the current state of play.
- Preparation of an updated transport scheme for Ruse.
- Organising and conducting discussions with relevant stakeholders and public discussion of the proposal for updating the transport scheme.

2.3.3 Business model and contractual partnerships

The measure is owned and implemented by Ruse Municipality.

Following a public procurement procedure we have concluded a contract with an external consultant company for the development of the new Municipal Transport Scheme.

The measure is financed as follows:

- 121,975 euro from CIVITAS ECCENTRIC (for the territory of the laboratory area – Druzhiba District).
- 115,000 euro from the Municipality of Ruse (for the rest of the territory of Ruse Municipality).

2.3.4 Critical challenges and success factors

Key challenges

The key challenges in this measure are the acceptance by the citizens and relevant stakeholders and the final acceptance of the updated municipal transport scheme. We are tackling this challenge by raising awareness about the importance of the measure during meetings with the citizens in the district, during information events and through social media.

Another important challenge is to meet the requirements of the different stakeholders. This is solved by carrying out surveys, interviews and focus groups with representatives of the different stakeholder groups –citizens, NGOs, companies, schools, hospitals, public transport service providers, experts from the transport and spatial planning departments in the municipality, representatives of the local council, etc.

2.3.5 Lessons learned from implementation/replicability

When there is a need for the reorganisation of PT lines in a particular part of the city (as our laboratory area – Druzhba District) the best way to do it is to analyse and reorganise the whole PT network of the city/municipality in order to achieve an optimum solution. The routes leading to a concrete neighbourhood cannot be properly analysed and reorganised separately from the rest of the city/municipality.

Additionally, it is of core importance to involve in the planning phase the citizens and other relevant stakeholders – companies, schools, hospitals, NGOs, etc. in order to receive proper feedback, ideas and support from the community which would be crucial for finding the best solution and acquiring acceptance of the new PT scheme.

2.3.6 Recommendations

- To consult with professionals who have experience in the field.
- To devote enough time to prepare the technical specifications for public procurement procedure for the reorganisation of the PT lines.
- To organise discussions with citizens and other relevant stakeholders – companies, schools, hospitals, NGOs, etc. in order to come up with the best solutions to satisfy their needs and to have their support during the planning and implementation of the measure.

2.4 RUS 5.4 Introduction of “Good Night” line to Druzhiba

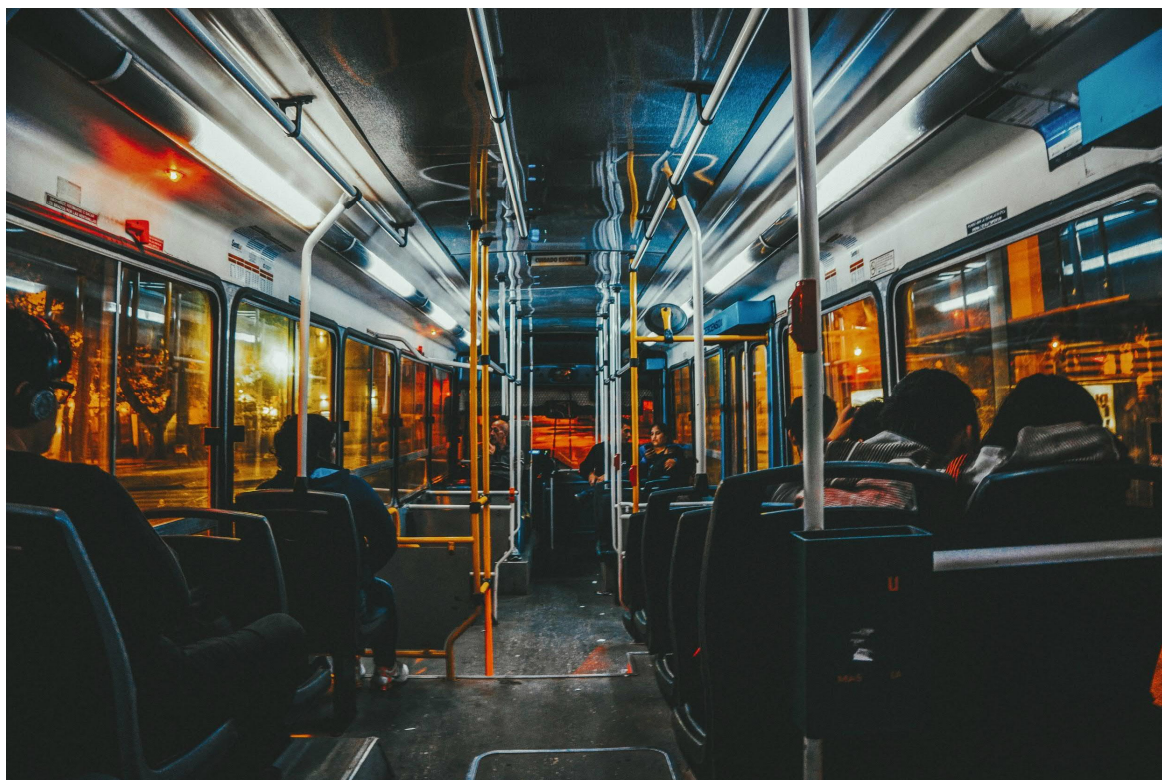


Figure 8: Interior of 'Good Night' line (© Fachy Marín on <https://unsplash.com/>)

This measure will provide public transport service during the nights in Druzhiba. The measure's implementation will consist of the creation of the new 'Good Night' bus line; and the promotion of the new service. The main output is the creation of a new nightline trolleybus service, which fulfils people's need for safe public transport.

There is a high demand for such a service and numerous letters from citizens have been received in the Municipality suggesting and asking to provide public transport during the night.

Expected impacts

- Decreased use of private cars and taxi services (impact on society).
- Decreased air pollution from private cars and taxis (impact on environment).

2.4.1 Introduction

In Ruse, there is currently no option for people to use public transport to or from the district of Druzhiba after 21:00h. Most people either opt for using their own cars or rely on taxi services. For many people, taxis are not a feasible option -leaving them feeling isolated and discriminated against.

Druzhba is Ruse's 'living lab' (or demonstration/pilot area) in CIVITAS ECCENTRIC, and one of the entrances to the city centre with high volumes of traffic.

The main aim behind this measure is to turn public transport into the preferred mode of choice for those living in the peripheral districts, such as Druzhba. In the mid and short terms, the measure is expected to impact on the use of the service during the night - an option which was not possible prior to CIVITAS ECCENTRIC.

In terms of environmental sustainability, this measure is expected to result in less use of cars (private vehicles and taxis) thereby contributing to better air quality in the city centre and in Druzhba.

2.4.2 Implementation

Implementation phase

Activities carried out so far, mostly during the research and planning phase:

- Planning and research activities concerning the conditions and procedures for establishing a 'Good Night' line to service people travelling to and from Druzhba to the city centre.
- Research on the options available for purchasing or leasing vehicles to operate the nightline. This led to the decision of contracting the service to the locally-based public transport operator who will use their own vehicles (trolleybuses).
- Meetings with experts in the field.
- Information about the measure and its promotion to the general public is being undertaken via the Measure RUS 2.11 *Information, Training and Awareness Raising* implemented in parallel to this one. The events have been held as follows: for professionals in transport (in February 2017); for Druzhba residents (in May 2017); and for locally-based NGOs (in September 2017).

The first steps for the integration of the new night service have been taken, with the public procurement for the development of the new Municipal Transport Scheme completed. When the new transport network will be developed and approved (by middle 2019) the 'Good Night' line will be launched and will begin operation. It is foreseen that the operation of the service be subcontracted to the local public transport operator (start of the Procurement and implementation phase).

In terms of the nightline service, the current plan is for it to run for three to four hours, on an hourly basis. The definitive route of the service will follow once several routes are piloted during the night. The service is scheduled to begin operation in spring 2019.

Other related sustainable mobility solutions

The introduction of the new night line of PT for the Druzhba district will complement the services of the new Park&Ride facility, currently being set up in Druzhba as part of CIVITAS ECCENTRIC through the Measure RUS 2.6 *Park & Ride in the peripheral district*.

This measure is also interrelated with Measure RUS 5.2 *Analysis of PT demand and reorganisation of PT network in Druzhba* and with Measure RUS 2.11 *Information, Training and Awareness Raising*.

Timeframe

The implementation of the measure is strongly dependent on the adoption of the new Municipal Public Transport Scheme, as the scheme defines the actual route of the new nightline. The process for updating the transport scheme takes around 12 months and the subcontracting procedure for the start of the operation of the nightline should take one to two months, in addition.

Currently, Ruse Municipality is searching for opportunities to pilot the nightline prior the elaboration of the new transport scheme in the city in order to initially test some of the possible routes.

2.4.3 Business model and contractual partnerships

The measure is owned by Ruse Municipality. The service will be subcontracted to the local municipality owned public transport trolleybus company. The measure is funded by CIVITAS ECCENTRIC.

2.4.4 Critical challenges and success factors

Key challenges

The main challenges faced while developing and implementing this measure thus far have been:

- Finding the best solution for the vehicles to be used for operating the new line: we have identified the only possible and working solution for Ruse Municipality concerning the vehicles to be used for the operation of the "Good Night" line: instead of buying or leasing CNG buses/electric vehicles we will subcontract the service to the local PT operator who will use his own vehicles (trolleybuses).
- Defining the route for the operation of the new nightline: the route for the operation of the new nightline will be defined as part of the service for updating the whole municipal transport scheme (measure 5.3 in ECCENTRIC).

2.4.5 Lessons learned form implementation/replicability

- The right way to define the route of the new nightline is through the process of updating the whole municipal transport network.
- It is important to involve citizens and other relevant stakeholders in the planning process for the definition of the route of the new nightline.

2.4.6 Recommendations

- To consult with professionals who have experience in the field.
- To do a thorough analysis of the whole municipal transport network in order to properly define the route of the new nightline.
- To involve citizens and other relevant stakeholders in the early stages of the planning of the new route.

2.5 TUR 5.5 Bike-sharing and Car-sharing schemes



Figure 9: Bike sharing system in Turku was launched in May 2018



Figure 10: Föli-bikes brand marketing

The main objective is to complement public transportation services, this measure will provide the first bike-sharing system (BSS) in Turku. A pilot BSS with 300 bicycles and 37 stations will be designed, procured and implemented.

Furthermore the objective is to encourage and enable car-sharing systems to be offered in Turku. The first demos have been planned with car sharing providers or with existing car fleet owners like the city, universities and other big car fleet owners.

For the bike sharing system the procurement and implementation phase was carried out May 2017 and April 2018. For the car sharing part of the measure, the procurement and implementation phase is between September 2017 and August 2018.

Expected impacts

- The usage of public transportation grows.
 - More attractive system when bicycles is also available.
- Cycling is more popular
 - City bike system makes cycling even easier on the area of Kupittaa and on the city center.
- Renting a car or sharing a car is more attractive alternative instead owning an own car.

2.5.1 Introduction

Aiming to complement PT services, this measure will provide the first bike-sharing system (BSS) in Turku. As well as will plan the car-sharing system for the coming future.

A pilot bike share systems with 300 bicycles (initially, 100) and 37 stations will be designed, procured and implemented.

Furthermore the objective is to encourage and enable car-sharing systems to be offered in Turku. The first demos have been planned with car sharing providers or with existing car fleet owners like the city, universities and other big car fleet owners.

The expected impact of the measure is to increase the usage of public transportation as bike sharing is part of it. Cycling becomes more attractive and as a competitive alternative to the private car. Renting or sharing a car will be perceived as a more attractive alternative than owning a car.

2.5.2 Implementation

Implementation phase

Relevant milestones accomplished during planning and procurement phase:

- The Turku city execution board accepted the proposal for the bike sharing procurement in April 2017.
- Preparations for the procurement of the bike sharing system: documentation for the bike sharing system, planning of the income and cost model for BSS system, market discussions.
- Tendering of the bike sharing system and contract with the chosen supplier: the tender was won by Nextbike Polska Ab.

- Tendering of the marketing and digital side of the bike sharing system: preparation of the income model, preparation of the tendering and contracts with the providers.

The physical marketing side of the bike sharing system was won by Clear Channel Suomi Oy, the digital side by Laulava Ovipumppu Oy.

- Planning of the station locations, 34 permanent locations: internal process regarding the station plan; external process regarding the other locations. After these processes, the locations were debated and decided by the politicians and all of the citizens living around the immediate location of a future bike sharing station were contacted by post. After the location places were decided, physical improvements of five station locations were made. In addition to the permanent locations, the system contains 3 pop-up stations.
- Creating a brand for the bike sharing system: creating the identity of the system with graphical elements, website plan, marketing plan, infomaterials, user videos, PR-videos, news, stakeholder involvement through local sparring group meetings. This phase also included pre-marketing for the companies located around the future bike sharing locations. The system is called Föli-fillarit and it is brand protected.
- Creating the pricing, ticketing system, registration system, it-interphases in cooperation with the operator and the project partner Western Systems under measure 3.2.
- Creating the bike sharing system from the operational side of the system together with the Nextbike Polska Ab. Enabling the local maintenance to be in place.
- Planning of the customer service and the process for informing faults in the bike system. Trainings for the customer service employees.
- Planning process for the implementation of the physical marketing side of the bike sharing system and the digital side of the system with the chosen operators.
- Planning of the launch of the bike sharing system together with third parties. Recruitment of the volunteers for the launch event. PR- plans for the launch event. The launch event takes place on 1st of May 2018.

Main changes were made from the original plans

City of Turku carried out a research in which they investigated the potentiality and the experiences from abroad. It became evident that the originally planned size of the system (100 bicycles) was way too small.

Based on the planning phase a proposal to the city board was made, the proposal included annual financing of 150,000 euros for the bicycle system of 300 bikes and 37 stations. This was accepted. This proposal included an income plan also from sponsoring and marketing. Based on this, a procurement for the marketing and sponsoring part was carried out. This meant a separate procurement for this part of the system.

On the other hand, the development of a bike sharing system that is procured in a new way has caused more work than originally planned. Due to this actions regarding the car-sharing have not been prioritized before the launch of the system. Therefore this part of the measure has not processed as quickly as hoped for.

Stakeholders involved in the different implementation steps

The procurement and implementation phase has included numerous stakeholders. To highlight few of them:

- The chosen operators regarding bike sharing system, Nextbike Polska Ab, Clear Channel Suomi Oy and Laulava Ovipumppu Oy.
- Different internal departments in the city of Turku – transport planning, maintenance, museum department, free time, education division, communication, marketing, tourism, regional public transportation department etc.
- Politicians, media representatives, interest groups, companies and citizens living around the bike stations.

Infrastructure required for the solution to function

The base for five bike station location was renewed by the city of Turku financing. In addition to this beacons were installed into each station and bike. This process is described in measure 3.2.

Other related sustainable mobility solutions

This measure is directly linked with measure 3.2. Also this measure is strongly promoted in measure 2.2.

Timeframe

Procurement and implementation of this measure (BSS) commenced in May 2017 and was completed in April 2018. This time frame is very short for such a huge action.

Regarding car-sharing systems, Turku city has carried out market discussions with several operators and invited them to show their offers in mobility package presentation that is part of measure 2.2. Several car sharing companies have also been presenting their offers in events organised by the project. Currently one new company has established services in the Kupittaa area. This part of the measure has lacked time, as the bicycle system has taken all the time available.

2.5.3 Business model and contractual partnerships

- The owner of the system at the moment is the CIVITAS ECCENTRIC project. City bike system is under head of our city development.
- The public authority procured the bike sharing system, physical marketing and digital marketing of the system. The bike sharing system is procured for 3+3 years, where as the physical marketing including 10 digital screens has been procured for 10 years.

- The measure is financed by income from the user fees, marketing, city's annual allocation and by the CIVITAS ECCENTRIC project financing. It is hoped that the system will break even in a long run.

2.5.4 Critical challenges and success factors

Key challenges

- How to get more users to the system? Currently the number of users is in average 2,920 users per month.
- Ways to lure private companies to buy their own stations? So far one private shopping center has bought their own station.
- How to ensure that the first winter of the system will be successful? A plan for carrying maintenance and ensuring safety has been done for each of the stations. All the bikes have studded tires installed.
- The process for the placement of the stations has been done in good cooperation within the different units of the city administration. At a crucial time, there was an active political debate about replacing parking places with stations of the bike sharing system. Due to this, the measure leader made risky decisions regarding the orders of the station pieces etc. Without these, the system would not be ready in time.
- The bike sharing system in Turku is done differently than bike sharing systems before. This has caused many extra challenges already in procurement phase as the procurements needed to be prepared very well in advance.
- Creating a bike sharing system is very time and resources consuming, therefore the creation of car sharing opportunities has suffered from it. This measure is too ambitious, as just the bike sharing system would have been enough. How to give equal opportunities for different car sharing operators interested to come to the city of Turku?

Key success factors and minimum requirements

- The bike sharing tendering raised a lot of interested as it was a new way of doing the procurement, as it included bikes, stations, operating and balancing – but not the customer service, marketing and it-side.
- The marketing tendering is giving new models to finance public services.
- By creating carefully the communication elements for the bike sharing system it is possible to create a positive brand for the system even before the launch of it.
- All year round bike sharing system has raised interested and has connections with the measure 4.8.
- One of the key success factors for the system has been a holistic plan that has been guiding the entire planning of the system. Without this the clear focus of the bike sharing system as part of MaaS would have been lost. It has helped to keep the ticketing as a separate measure (3.2.) to carry out the ambitious plan

2.5.5 Lessons learned form implementation/replicability

- In Turku the procurement and implementation phase of the bike sharing system was one year. This is extraordinary fast and it is recommended to reserve a minimum of 1.5 years to it.
- Make sure that there is enough time for piloting before the launch. In Turku the operator was only able to deliver the stations and bikes in Turku two weeks before the launch and this reduced the testing time significantly.
- Launching a totally new system requires more staff resources than expected as in Turku case the system is maintained in three languages.
- Integration with Public transport adds value to the system especially co-operation with customer service, marketing, it. This needs new way of thinking and efforts towards common understanding should be highlighted.

2.5.6 Recommendations

- Create a bigger vision for new mobility services and dare to set the ambition level higher than before. This is especially important when we are talking about high visibility actions, such as city bikes that will change the city in many ways.
- There is always a risk in launching a new system, the risk is multiplied when it is done differently than other systems in many ways. In Turku case, the bike sharing is all year round system and this even increases the risk as this creates an extra layer of things to consider in addition to all the other new parts of the procurement. It is important that there is financial leave way and trust in regards the project manager of such measure.
- It is important to plan for the communication and media exposure in advance and involve celebrities in marketing actions. In Turku we combined we created launch videos in co-operation with city theatre and local tv-celebrities. This created the base for good media exposure.

2.6 MUC 5.6 Replication of Smart e-Mobility concepts

(Explicative new name: **Conception and development of an integrated e-trike sharing scheme**)



Figure 11: MVG E-Trike

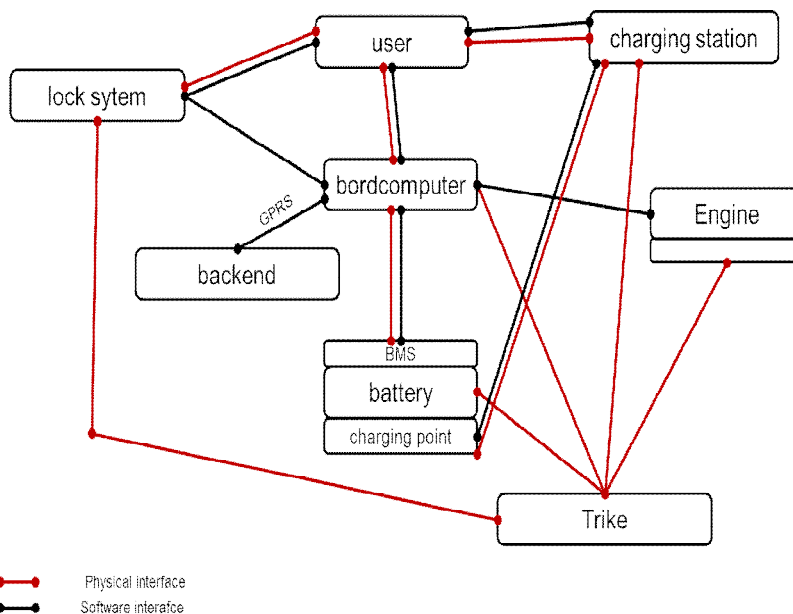


Figure 12: Interaction and communication of E-Trike sharing components

The reduction of the individual car use and the availability of multimodal mobility for everybody is a challenge for the future. Within this measure the barriers, indicators and the best framework for the deployment of e-mobility in cities will be analysed. A particular focus will be on the integration of an e-bike (e-trike) in a bike-sharing scheme (MVG Rad) as part of a multimodal public transport system and solution for medium distances in a city as well as its surrounding area.

The main output will be a best practice solution based on the Munich case. The development of a carrier e-trike for mobility-impaired people and people who want to transport heavy loads by bike, as well as a concept for the integration of an e-bike (e-trike) in "MVG Rad", which will be established in Munich to verify the assumptions made in the consortium (e.g. as a part of the mobility station at Domagkpark M1). This will enable and facilitate the implementation of an e-trike in the public bike-sharing scheme MVG Rad in Munich – and other cities, planning to replicate this solution.

Expected impacts

The expected impact of the measure is to allow bike-mobility to people with reduced mobility and to reduce the individual car use and therefore transport-related emissions.

2.6.1 Introduction

Cities are struggling with increasing pollution due to traffic emissions. Munich faces huge problems, especially concerning air pollution. Part of a sustainable solution is therefore to promote and implement electric mobility solutions, as this may reduce local emissions and at the same time foster the use of alternative fuels (renewable energy). In Munich, a public bike-sharing scheme (MVG Rad) is already existing, but old and impaired people often cannot use the bicycles, because they prefer electric bicycles or the sense of balance is weak. In addition, customers cannot transport heavy loads with those existing bicycles. The alternative is often the usage of cars.

Therefore, the main objectives of this measure are:

- To increase knowledge of public pedelec / e-bike sharing schemes.
- To create a replicable and profound concept on an e-mobility solution (public e-trike-sharing).
- To test the prototype and to develop it further based on the tests.
- To reduce the individual car use.
- To reduce transport-related emissions and strengthen the role of public transport companies as backbone of sustainable urban mobility.
- To foster e-mobility and public multimodal transport systems.

2.6.2 Implementation

Implementation phase

The following steps were made to reach the objectives:

- Procurement of the components (April 2017 – March 2018)
- Integration of the E-Trike components for bike sharing (January 2018 – June 2018)
- Testing and Improvement of the components (January 2018 – December 2018)
- Planning of the E-Trike charging station (November 2017 – February 2018)
- Testing of the charging station (start: July 2018)
- Development of terms and condition, data protection, Insurances for the E-Trike sharing scheme (May 2018 – December 2018)
- Development of the accounting process (May 2018 – July 2018)
- Development MVG eTrike App (May 2018 – July 2018)
- IT penetration tests (July and October 2018)
- Coordination and Management of the operation for the sharing concept (January 2018 – July 2018)
- Development of the FAQ and product page (June 2018 – December 2018)

Main changes were made from the original plans

The original plan was to integrate the eTrike in the existing bike-sharing scheme MVG Rad. Physically this was done, you find the eTrike at the mobility stations in Neuauubing/Westkreuz and further information here www.mvg.de/services/mobile-services/mvg-rad/etrike. However, an own App was needed due to lack of time for a whole integration in the existing system/App.

Stakeholders involved in the different implementation steps

One main stakeholder was the TU München. The MVG already had a close connection to the TU München. Therefore, a collaboration was established quickly. The objective of the university was to develop the first prototype.

As operator of the system, the MVG coordinates and commissioned third-party companies, who are responsible e.g. for the maintenance of the eTrike.

To get an overview of the needs of the target group for building the eTrike, manufacturers were contacted and asked about their experiences.

Furthermore, we plan a test within the Domagkpark as well as with an elderly person in the Smarter Together project in 2019.

Infrastructure required for the solution to function

e-Trikes need a charging infrastructure (see Figure 9 above), especially when they are part of a public sharing scheme. Therefore, a charging infrastructure was installed.

Other related sustainable mobility solutions

As already mentioned, the eTrike is part of the MVG (e)Rad bike-sharing scheme, which belongs to the multimodal public transport system and solution for medium distances in Munich as well as its surrounding area. At some places, the bike-sharing scheme is also part of a mobility station (see www.mvg.de/mobilitaetsstationen).

Timeframe

The implementation itself (phase 2) took about six months.

The following activities were made:

- March 2018 – Procurement for eTrikes elements finished.
- May 2018 – Improvements of the E-Trike Prototype completed.
- June 2018 – Manufacturing of the eTrike prototype 2.0 (start).
- December 2018 - eTrike prototype 2.0 completed.

2.6.3 Business model and contractual partnerships

Owner and operator of the MVG eTrike is the SWM/MVG¹. Apart from internal personal staff (for IT, supply, evaluation and marketing as well as from the internal purchasing and legal department), different external partners are involved:

- TU München, developing the prototype.
- And different companies for delivering:
 - The hardware, like battery and e-Trike frame.
 - And IT components like lock-system and backendsystem.

As the SWM/MVG is the linked third party of the City of Munich in this project, both parties signed an agreement for the cooperation (regarding responsibilities, money transfer, etc.). The SWM/MVG coordinates and commissioned third-party companies.

The measure is funded up to 70% by the CIVITAS ECCENTRIC project. Everything else (30%) is financed by the City of Munich's Utility Company (Stadtwerke München GmbH). The planned budget is about 390.000 €.

In future, at least the operation of the e-trikes should be cost-covering. Another option are cooperations with interested companies. Therefore, a detailed business model has still to be established.

¹ City of Munich's Utility Company (Stadtwerke München GmbH/SWM), the local public transport corporation (MVG)

2.6.4 Critical challenges and success factors

Key challenges

As the eTrike is a new product development (no existing system), the key challenge is to coordinate the various stakeholders and suppliers involved. That leads to long communication channels. The interaction and integration of all technical and software components was and still is not easy as well.

Key success factors and minimum requirements

Finally, due to a close cooperation, the most challenges could be solved. Therefore, the collaboration improved a lot and the technical problems seems to be tackled as well – so far (the upcoming field test has to prove this fact). The prototype 2.0 is now available.

2.6.5 Lessons learned from implementation/replicability

One of the main problems was the lack of time. Some stakeholders had to be involved much earlier, so that a whole integration of the system might have had a chance. In addition, the delivery of batteries takes time due to the market situation.

Finally yet importantly, to develop an e-Trike which should meet different needs (target group, Integration in existing hard- and software, compatible for a public sharing system) is quite complex and comparatively cost-intensive. The questions are:

- If there will be enough users and potential partners to justify this effort.
- If the system finally works as a whole.

So, if this measure is replicable will be clear after the field test (2020).

Regarding replicability e-Trikes use a modular sharing system scheme (from charging station, app, backend system and the bordcomputer) which is partly and as a whole transferable for all electrical mobilities. This means, it could be extend to other forms of mobility.

If the new offer is well accepted in the test area, it would be desirable to extend e-Trikes to the entire urban area of Munich. The number of bikes could then increase as well.

2.6.6 Recommendations

It is important to have a clear concept and to start as soon as possible (if you have any deadlines like in a funding project), especially with the information and integration of stakeholders/partners – there are always unplanned things coming up.

3 Lessons learned from implementation

Urbanism and mobility have a direct effect on the quality of life of citizens, so they are relevant aspects in public administrations strategies and policies. A livable and friendly city is one where shared mobility, active modes and public transport play a leading role in front of the private vehicle.

Public Transport is a good way to reduce congestion and emissions in urban areas improving the environment and citizens' health, especially when alternative and cleaner fuels are used for running. The European Commission strongly encourages the use of public transport as the main link of the integrated and multimodal transport chain in a city.

On the other hand, the shared mobility systems (car, bicycle and motorbike), are growing exponentially in many European cities, offering a transport alternative tailored to the new citizens' needs. In addition, being electric vehicles or low emissions, are contributing greatly to improve the cities' air quality.

The six measures of Cluster 1 outlined in Section 3 are being developed in five European cities (Ruse, Stockholm, Turku, Munich and Madrid) and are useful examples for other cities facing the same problems: the reduction of the individual car use and the availability of multimodal mobility for everybody.

In general the actions on transport systems are high visibility actions and in most of the occasions will change the city in many ways. That is because it is of greatly interest to take into account the following relevant aspects when implementing mobility measures.

Key general aspects to be considered

- It is important to have a clear concept and to start as soon as possible especially with the information and integration of stakeholders/partners.
- Commitment and cooperation between all the administrations and relevant stakeholders involved is a key point for the success of the action. With a close cooperation and collaboration of these relevant agents the most challenges can be solved.

Main actors: City councils, Public Transport Authorities, Public transport operators, new shared mobility systems operators, suppliers, interest groups, citizens, politicians, etc.

- As a key challenge is to coordinate the different actors involved long communication channels are needed.
- It is also a key point a clear division of responsibilities between the stakeholders.
- The action to be implemented must be in line with the general strategy of the different administrations involved.
- All partners must work in the same direction regarding the implementation of actions.
- It is also important to consult with professionals/experts/manufacturers who have experience in the field you are interested in.

The importance of citizen participation: transportation designed for the user

- Integrating user perspectives into all transport aspects is key for gaining community support to the initiatives.
- All measures in this cluster highlight the importance of involving citizens and other relevant stakeholders since the early beginning, to gain support, market, increase impact overall, and to spread success stories afterwards.
- All measures highlight that it is important to clearly define why the project is needed, to gain initial support and budget, but also to design and execute it in a way that leads to goal fulfilment. That is because it is of core importance to involve the citizens and other relevant stakeholders in order to receive proper feedback and ideas as well as the acceptance of the measure.

Transport adapted to the new mobility needs

The design of new mobility concepts must be focused on feasibility and financing and its implementation implies redefining urban planning and mobility schemes. The shared mobility systems (car, bicycle and motorbike) offer a transport alternative tailored to the new citizens' needs.

All measures focus on shared and accessible mobility systems highlight the following topics:

- When launching a totally new shared mobility system special attention must be paid to the duration of procurement and implementation process (minimum 1.5 years) as well as to the staff resources required.
- Make sure that there is enough time for piloting before the launch of shared mobility systems not only for testing the running of the system but also for evaluating its acceptance by the users.
- Integration of these new shared mobility services with public transport adds value to the system especially co-operation with customer service, marketing, IT. On the other hand, the integration should meet different needs (integration in existing hard- and software, compatible for a public sharing system) and this is quite complex and comparatively cost-intensive.

Communication campaigns and actions

Communication actions informing users (citizens) about new mobility services or improvements in the public transport system of the city are very useful for raising awareness about the importance of the measure and its final acceptance.

Therefore it is important to plan for the communication and media exposure in advance and involve relevant actors in marketing actions. Also celebrating meetings with the citizens and information events are important.

4 Conclusions and Next Steps

4.1 Conclusions

European cities are increasingly facing problems caused by transport and traffic: in many urban areas an increasing urban mobility has created an unsustainable situation with poor air quality, high levels of CO₂ emissions and noise as well as great traffic congestion. The European Commission's Urban Mobility Package and the European Parliament's initiative report on Urban Mobility both state the urgency of addressing the challenges regarding the aforementioned issues. Urban mobility is also closely related to other EU policies such as energy, climate change, air quality, economy, social equity and accessibility, innovation, IT deployment and smart cities.

In a multimodal and sustainable (social, environmental and economical) transport system approach more efficient transport solutions can be offered to the citizens taking advantage of the strengths of the different modes which will make the transport sector safer, cost efficiency and environmentally-friendly. In short, multimodality highly contributes to a real integrated and sustainable transport system.

For urban areas, this implies a modal shift to public transport modes as well as to active modes (walking and cycling) and the introduction and deployment of new shared mobility services desirably integrated to public transport to add value to the system. Also mobility management is key.

In this context of change, ECCENTRIC project and specifically the Cluster 1 measures regarding reorganising public transport networks and services are an exceptional opportunity to share valuable experiences (and tested in the laboratory areas) with other cities allowing them to improve their sustainable mobility strategies.

Four of the measures presented in this report are examples of the improvement of public transport networks in peripheral areas and the other two are regarding the introduction of new, integrated and accessible shared mobility services complementing public transport in the cities. All the measures highlight the role played by the City Councils regarding the provision of financing, regulation and policy instruments, public land, necessary recharging infrastructure to support electric vehicles and communication campaigns. Also the European Commission funding (through ECCENTRIC project) has been a key point.

The main challenge for local decision makers is to get the necessary citizens' acceptance when defining their mobility strategies and regulations and implementing the mobility measures as it has been highlighted in this report. Therefore, the involvement of different interested groups and stakeholders in the planning process and the communication campaigns are key topics for the success of the measures. On the other hand, the urban fabric is one of the key factors that condition the implementation and adequacy of the mobility measures.

4.2 Next steps

The implementation of different measures regarding public transport is producing valuable inputs for relevant public transport stakeholders and urban policy makers. With the aim of maximize the benefits of these experiences, the following activities are proposed:

Measure	Next steps
MAD 5.1 High level PT service corridors in peripheral districts (Madrid)	<ul style="list-style-type: none"> • Once finished the construction project of the pilot section the following step would be to include the action in the 2019 budget of Madrid City Council in order to be able to tender the construction works within the expected period. However, it will be impossible to execute the measure on time by the City Council due to the complex administrative procedures. The agreement is that the corridor will be included within the new SUMP (which review recently started) as an infrastructure to be built in the close future. • Therefore, this measure is now focusing on how to carry out the ex-post evaluation. The CRTM has decided to launch a stated preference survey amongst PT users of the corridor to evaluate the ex-post situation, as well as a campaign of geolocalisation of PT and private car users by mobile phones. • The launching by CRTM of the tendering process has already begun: the terms of reference for the tender are being drafted in order to initiate the administrative procedure as soon as possible.
STO 5.2 Speed up core bus routes (Stockholm)	<ul style="list-style-type: none"> • Implement the last measures (December 2018). • Post measurement in June 2019.
RUS 5.3 Analysis of PT demand and reorganisation of PT network in Druzhba (Ruse)	<ul style="list-style-type: none"> • Exercising control over the implementation of the contract with the selected subcontractor: <ul style="list-style-type: none"> - Collection and analysis of baseline information on the current state –end of 2018. - Preparation of an updated transport scheme of Ruse Municipality –middle of 2019. - Organizing and conducting discussions with relevant stakeholders and public discussion of the proposal for updating the transport scheme middles of 2019.

Measure	Next steps
RUS 5.4 Introduction of “Good Night” line to Druzhba (Ruse)	<ul style="list-style-type: none"> • Scheme for this new line finally accepted by the middle of 2019 (after the results of the measure RUS 5.3 contract). • Nevertheless, a pilot project will start earlier -in the beginning of 2019.
TUR 5.5 Bike-sharing and car-sharing schemes (Turku)	<p>Regarding bike sharing system:</p> <ul style="list-style-type: none"> • Demonstration and monitoring phase of this measure will be completed in April 2020 (commenced in March 2018). This includes many actions starting from marketing and finishing into internal processes. • Conclusions and recommendations of this measure will start in January 2019 and will be completed in April 2020. <p>Regarding car sharing the planning is as follows:</p> <ul style="list-style-type: none"> • Planning and implementation phase will be completed in February 2019. • Demonstration and monitoring phase of this measure will start in March 2019 and will be completed in April 2020. • Conclusions and recommendation will be from May 2020 to June 2020.
MUC 5.6 Replication of Smart e-Mobility concepts (Munich)	<ul style="list-style-type: none"> • Test the eTrike prototype with friendly user in Spring 2019. • Monitoring → conclusions and recommendations: January 2019–July 2020.

Table 2: Next steps

5 Sources /References

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