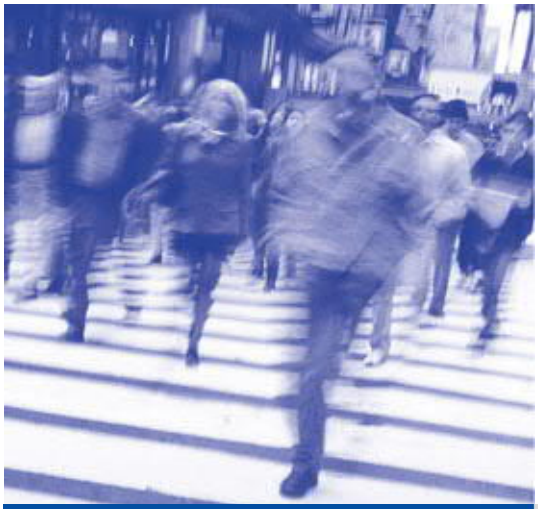

2020 CiVITAS
Cleaner and better transport in cities

ECCENTRIC

D7.2 Implementation Report WP7 Cluster 1:

Efficient supply chains

Deliverable No.:	7.2
Project Acronym:	CIVITAS ECCENTRIC
Full Title:	
Innovative solutions for sustainable mobility of people in suburban city districts and emission free freight logistics in urban centres	
Grant Agreement No.:	690699
Work package No.:	7
Work package Title:	
Towards better and cleaner urban freight logistics	
Responsible Author(s):	
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Responsible Co-Author(s): WP7 Measure Leaders	
ECCENTRIC partners	
Date:	
Status:	Final
Dissemination level:	Public

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ECCENTRIC

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Abstract

The report summarizes the progress of demonstration measures of WP7 cluster focused on Efficient Supply Chains, which includes measures 7.1, 7.2, 7.3, 7.4 and 7.5. The report also presents how this cluster tackle with the main challenges of better and cleaner urban freight logistics identified at European level and the replication potential of the different measures.

Cluster Partners

Organisation	Country	Abbreviation
Ayuntamiento de Madrid	Spain	AYTOMADRID
Universidad Politécnica de Madrid	Spain	UPM
FM Logistic Corporate	Spain	FM LOGISTIC
Stockholms Stad	Sweden	STO
Landeshauptstadt Muenchen	Germany	LHM
Münchner Verkehrsgellschaft mbH	Germany	MVG
Domagkpark Genossenschaft EF	Germany	DOMAGK

Document History

Date	Person	Action	Status	Diss. Level
1/12/18	Carlos Verdaguer	Revision	Draft	TC, WPL, ML
2/01/2019	Juan Azcárate		Draft	TC, WPL, ML
3/01/2019	Carlos Verdaguer	Quality Check	Final draft	TC, WPL, ML

Status: Draft, Final, Approved, and Submitted (to European Commission).

Dissemination Level: PC = Project Coordinator, SC=Site Coordinator, TC=Technical Coordinator, EM=Evaluation Manager.

Table of Contents

List of Figures

List of Acronyms

ACM	Adaptive City Mobility
API	Application Programme interface
ca	*circa* (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.	*exempli gratia* (for example)
FCEV	Fuel Cell Electric Vehicle
GA	Grant Agreement
H2020	Horizon 2020
HOV	High Occupancy Vehicle
IA	Innovation Actions
i.e.	*id est* (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

Demonstrate and test innovative solutions for cleaner and better urban freight in urban centres has been identified as a main need that remains unresolved even in cities that have developed a comprehensive set of actions and policies on sustainable mobility. The freight companies face emerging challenges to design efficient supply chain schemes as city centres show an increasing conflict in public space use, the tolerance for noise and pollution leads to more demanding requisites and, at the same time, digitalization is inducing a disruptive change in customer behaviour through e-commerce.

The CIVITAS ECCENTRIC measures dedicate to tackle the specific challenges of logistic supply chains for urban freight in the city centre (WP 7- Cluster 1) cover a variety of potential approaches to develop and analyse economically viable and efficient urban goods delivery operations, new business models in urban logistics and freight consolidation solutions, thus reducing heavy and light duty traffic, energy consumption and emissions.

The implementation report describes the status of the five measures being implemented in the three participant cities and the different inputs that have been used to reshape and analyze the progress, particularly the peer to peer review process. Furthermore, the cluster as a whole has been examined in the framework of the European target to reach clean and CO_2 free city logistics in major urban centres by 2030, taking into consideration the guidance reports produced in 2018 by the EU aiming at smarter urban logistics as well as the observations gathered during the periodic report meeting of the ECCENTRIC project.

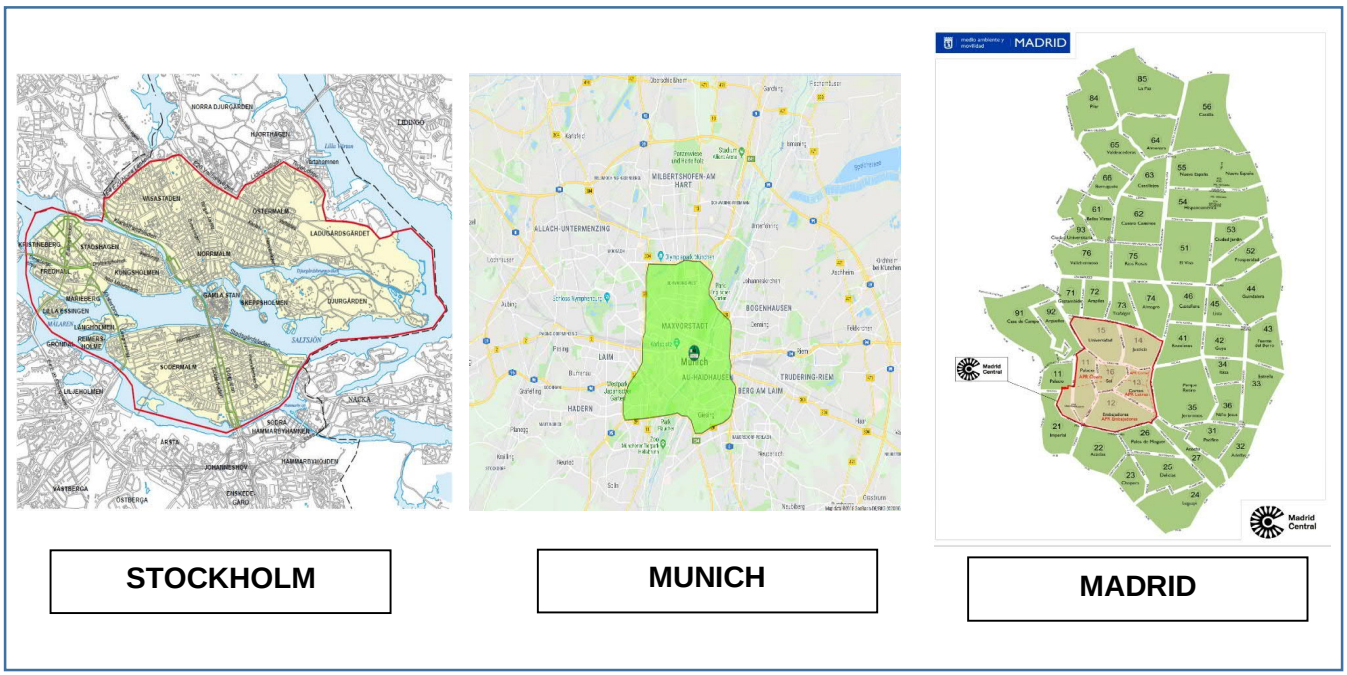
1 Introduction

The UE Communications “A European Strategy for Low-Emission Mobility” and “Europe on the Move”, COM (2017)-283 and COM (2016)-502, respectively, highlight the importance and challenges represented by freight transport, that is expected to grow by 60 per cent, in achieving sustainable mobility systems and how the success in the shift to low-emission mobility will very much depend on how cities address urban logistics issues.

It is widely accepted that there is a need to design, organize and manage last mile freight in a smarter way and, with this aim, the European Commission’s Directorate General for Mobility and Transport (DG MOVE) has produced the “Study on urban logistics - The integrated perspective - 2018” that provides guidance documents targeted to local and regional administrations. This study provides a comprehensive vision and a useful framework to analyse the ECCENTRIC project measures focused on practices and emerging solutions to boost supply chain efficiency in urban areas (see Table 1), such as consolidation centres, innovative drop-off and pick-up services, last mile delivery services, etc.

ECCENTRIC project constitutes a great opportunity to examine the main observations and recommendations stated by the mentioned study. As an example, within the general challenges of emissions and road congestion posed by freight transport and logistics in urban areas, the main topic highlighted on the list of policy solutions are the Urban Vehicle Access Regulations (UVAR), which have a direct and significant effect on supply chain schemes. Taking into account that the three cities involved in the ECCENTRIC WP7-Cluster 1 (Stockholm, Munich, Madrid) have implemented different UVAR and restrictions approaches to access the city center, covering from low emission zones to congestion charging schemes, the ECCENTRIC project could be a useful source of experience about this interaction between local policies and logistics supply chains.

Figure 1: Zones with Urban Vehicle Access Regulations in ECCENTRIC cities



The ECCENTRIC measures included in this cluster of Efficient Supply Chains also offer a test field to analyze the engagement and collaboration of different stakeholders when

implementing urban freight logistics activities, other of the a key topics identified by the UE to enhance the transparency and acceptability of the solutions. The “ecosystem” generated within the CIVITAS ECCENTRIC brings together local policy makers, vehicle manufacturers, freight transport companies, retailers and real estate developers, providing an opportunity to formulate cooperation schemes to reach better and cleaner urban freight logistics.

Measure	City	Partner(s)
7.1 – Consolidation centre with EVs and local regulations for clean urban freight logistics	MADRID	AYTOMAD/FMLOGISTIC/UPM
7.2 – Consolidating Stockholm municipal freights	STOCKHOLM	STO
7.3 – Combining Cargo-Bike-Delivery with a flexible package system	MUNICH	LHM/MVG
7.4 – Night delivery with clean and silent vehicles	STOCKHOLM	STO
7.5 – Neighbourhood oriented concierge system	MUNICH	DOMAGK

Table 1: Measures of WP7- Cluster 1 – Efficient Supply Chains in urban freight

2 Explanation of the work implemented in WP7 Cluster 1: Efficient supply chains

This report summarizes the actions, critical challenges and levers and lessons learned for each of the five measures included in the WP7 Cluster 1. Apart from the technical description at measure level described in subclauses 2.1 – 2.5, it should be also noticed some general activities performed at Work Package level:

- Peer to peer process: the peer review has been carried out following WP 9 "Dissemination, networking and cross fertilization" Leader instructions, so every measure has been reviewed by two ML reviewers, and each ML has reviewed two different measures., As a result of this P2P team-work activity, a better understanding of the set of measures included in the cluster has been achieved and the ML have had the opportunity of analyse similarities and alternative approaches of logistic challenges, acquiring a wider scope for their own purposes. The inputs from to reviewers to the measure have result in several conclusions, reflections and proposals of improvement.
- During the Periodic report meeting of ECCENTRIC project, held in May 2018 at Brussels and taking the advantage of counting with the attendance of the representative of DG Move Mr. Mans Lindberg, the opportunity of integrate recommendations of European studies on urban freight and line-up the ECCENTRIC measures with these general trends were identified.
- The replication workshop held in Stockholm (September 2018) was helpful for correlate WP7 measures which other measures linked to urban logistics (e.g. test fleets of EV for freight deliveries, combined supply and inverse logistic chains) as well as to share information and experiences with observers city group.

2.1 MAD 7.1 Consolidation centre with EVs and local regulations for clean urban freight logistics (Local partners 01.AYTOMAD, 30.FMLOG, 05.UPM)

Figure 2: Consolidation Centre

Figure 3: Distribution area and type of vehicle used

2.1.1 Introduction

The measure aims to stablish and exploit a consolidation centre to develop a freight distribution model based-on the use of electric vehicles, and a prototype developed in the M.7.6, for the last mille distribution of goods. Among that, the measure aims to get information related to mobility regulatory actions.

2.1.2 Implementation

Actions have been developing according to the plan. Not relevant changes have been done, just the move from the initial selected location of the center to the actual one, due to the amount of envisaged operations once the service contracting activity started.

The prototype planned in M.7.6 will start operatinons in next months.

Particular infrastructure.

- Logistic center
- Vans and trucks
- Electrical charging stations

January 2017	Logistic operator carry out a market study to evaluate convenience of consolidation center and services developed.Definitions of center characteristic, dimmensions distance to distribution area, number of docks.	FM Logistic
April 2017	Logistic operator study feasible location assessing, distance, dimensions, cost, etc.	FM Logistic
June 2017	Implementation of the center. Rental agreement, deployment of charging station, vehicles procurement.	FM Logistic
January 2018	Customer servicies contracts	FM Logistic
February 2018	Staring of center logistic operations Monitoring, Data collection	FM Logistic

2.1.3 Business model and contractual partnerships

FM logistic developes the business: it is the owner of the facility by a private rent agreement, the responsible of the logistic explotation and the provider of information about operational data for measure assessment. There is not any formal relationship between the public body and the private partner, both participate in the measure but collaboration with city administration has been promoted at differente levels.

The measure is mainly financied by EU funds (74,87%), although it is intended that the consolidation center and the activity will continue beyond the end of the ECCENTRIC project by self-financing through a sustainable business model.

2.1.4 Critical challenges and success factors

One of the main challenges has been the selection of the center. To tackle this issue FM Logistic carried out a study to identify a proper location for the center. The study took into account distance to distribution area, useful surface needed, facility conditions and renting cost. Together with the characteristics of the center itself, the activity to develop was also considered, addressing criteria such as types and quantity of goods, delivery points, and types of vehicles.

Other issue considered has been the claims of some neighbors regarding noise impact. To avoid this problem some of the outside operations moved inside the warehouse.

In any case, it is expectd that these improvements in the environmental conditions will carry benefits in the goods distribution chain as a whole. The key factor driving the development of consolidation centers towards more sustainable models in the field of logistics is the new environmentally-oriented mobility regulation, aiming to improve environmental conditions in city centers.

Different logistic operartors don´t like to search the same operational space, usually one operator will run one platform, so this is an issue to face in order to scale up the measure and consider it as a city system.

In other hand, self-financing after the conclusion of the project will be the main barrier to face in the future.

2.1.5 Lessons learned form implementation/replicability

- Mobility regulations of the city will foster or guide development of a consolidation centers system
- Usually consolidation centers will be located in city center, therefore impact to neighbourgs shoud be taken into account.
- Consolidation centers require complementary elements and infrastructures, electric charing stations, adapted entances, cold chain requirements or special noise isolation.
- The design of the center should consider the evolution of the business, i.e. surface, type of goods.
- Logistic operators don´t like to share logistics spaces, usually one operator will run one platform

2.1.6 Recommendations

City policy makers have a key role in the implementation of a consolidation center system. Mobility regulations are the main factor in the decision of a logistics operator to invest on a consolidation center. Apart from urban mobility, other city policies must be coordinated. Urban Planning shoud provide space to deploy consolidation platforms whitin the city in proper conditions, as well as establish adequate rules to guide this activity.

Consolidation centers help to reduce some environmental issues but could generate some other impact as they are getting closer to residential areas, and this must be taken into account in advance.

2.2 STO 7.2 Consolidating Stockholm municipal freights (Local partner 09.STO)

This measure comprises two key actions. The first one is a pre-study to outline the potential to consolidate goods purchased by the City of Stockholm. The second one is to consolidate heavy mass from excavation projects using barges instead of trucks.

2.2.1 Introduction

A pre-study outlining the potential to consolidate goods purchased by the City of Stockholm was carried out. This pre-study outlines a variety of alternative and makes suggestions about the types of activities, product groups and steps required to realise consolidation. This pre-study serves as a basis for political decisions about the future consolidation of municipal goods in Stockholm, but its findings are relevant to other cities and a translated version of the report has been produced by Eccentric.

The other action concerns the collection of heavy mass from excavation in tunnelling and other construction sites. Transportation of such heavy masses accounts for a large part of heavy goods vehicle road traffic in Stockholm and is likely to increase in the near future, as the City metro and sewer systems will be expanded. For this reason, the City of Stockholm is keen to test and evaluate the potential of using barges to consolidate heavy masses for trans-shipment out of the city. The demonstration will result in evaluation of noise impacts from loading uncrushed material to a barge in central Stockholm, a cost-benefit analysis between transport by barge or truck, and the mapping of potential loading areas in the Stockholm region.

Both actions will have an impact on reducing the number of heavy goods vehicles in the city. To plan and demonstrate such solutions, these actions aims to increase knowledge about the steps required to implement consolidation of deliveries for municipal goods and to demonstrate and evaluate potential benefits of using barges on inland waterways and to remove heavy mass from inner city construction sites.

2.2.2 Implementation

<u>Key steps for the first action – consolidating goods purchased by the City of Stockholm</u>

- Analysis of other cities consolidation centers
- Interview with transportations, goods distributors and city stakeholders
- Proposal of implementation steps for the City of Stockholm politicians

<u>Key steps for the second action – consolidation of heavy mass from excavation projects using barges</u>

- Collect all the pros and cons using barges and using trucks from one location
- Get the project owner (who decides which transportation will be used in the end) interested in doing this investigation

- Investigate noise impacts from loading aggregates on to a barge and noise impacts from using trucks.
- Do a cost-benefit analysis
- Map potential loading areas in the Stockholm region

Some significant changes from the original plans have been adopted. A political decision on how to proceed with implementation of the pre-study report's conclusions was expected during spring 2018. However, no decision has been made yet. As a result, it is not possible to foresee how a decision will be made prior to 2019 at the earliest. For this reason, a change in the focus of activities was proposed to and agreed with the Project Officer during the Review Meeting in Brussels on 8 May 2018

In the first action, representatives from different offices within City of Stockholm participated in the project. Interviews were made with transportation companies, goods distributor and other cities with consolidation centers.

In the second action, the project has collected information throught different experts outside of the City of Stockholm adminsitraion offices. An inland shipping company has provided knowledge about barges. An aggregate company has provided knowledge about aggregates. A subcontractor with expertice in acoustics has conducted the noise tests. The Swedish Maritime Adminsitration has provided information about costs and regulations on water. The Stockholm Port has provided information about our ports and possible off-loading sites.

Regarding timeframe, the implementation of the consolidation center needs some years. The feasibility study shows that the City of Stockholm first should implement a more logistics oriented procurement, instead of open up a physical consolidation center. This logistics oriented way of procuring would be evaluated after one or two years in order to decide how to move forward.

The implementation of using barges will not be able to start until 2020 when the project of extending the underground starts. However, a decision on which way to transport the tunnel rocks needs to be taken during spring 2019. An implementation like this needs time to ensure it is feasible to use barges from this site. The time frame is depending on other actions within the project, but, if we don't take into account other aspects related with the planning of a tunnel under the city, an estimation can be made of 6 months from start to action.

2.2.3 Business model and contractual partnerships

The text below only applies to the second action, as the first one ended with the pre-study.

The solution is not owned by anyone, it sould be available for every project that has potential to use barges. The City of Stockholm will use the final report with its results for other projects in the city.

So far, the only procurement that has been conducted is the one for the acoustics company. The owner of the project is a public stakeholder (Stockholm Regional office) that will build the tunnel, and they will procure the transportation after deciding on what type of transport should be used.

The feasibility study is financed through Eccentic, but the public authorities will finance the actual implementation.

2.2.4 Critical challenges and success factors

For the first action, the key challenge has been to get the project approved by the politicians. Due to national election earlier this year, there has been a change in the municipal board. To overcome that problem, we decided to accept the pre-study report as the result for Eccentric, focusing instead on a new challenge: heavy mass transport.

A key challenge with the second action has been to convince the public authorities responsible of the underground extension project to consider the possibility of using barges instead of trucks. There is a general prejudice against water transportation, with the main reason that “trucks are more reliable”. A huge focus in this action has therefore been on persuading them that water transportation might actually be more reliable.

2.2.5 Lessons learned form implementation

When implementing a consolidation center, make sure to have the politics onboard throughtout the process. In this case, they did give us the okey for further investigating possibilities of implementing a consolidation center. However, when the report was actualliy delivered, it was not prioritized.

For using barges instead of trucks, it is important to have people that are positive about using barges doing the investigation. Due to predjudice about using the waterways instead of trucks, projects usually choose the “easier” way, e.a. trucks.

2.2.6 Recommendations

When planning a project involving transportation of heavy masses, it is recommended to initially look into possibilities of using waterways depending on its location. If possible, the authorities should then put it as a criterium for implementing the project. For example, the government of Sweden said that the heavy masses had to be transported using barges/ships instead of trucks when building the new highway southwest of Stockholm.

2.3 MUC 7.3: Combining Cargo-Bike- Delivery with a flexible package system (Local partner 16.LHM/MVG)

Figure 4: Microdepot and cargo-bike
(© Nicholas Duesberg)

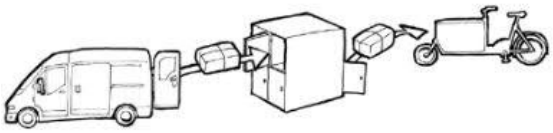


Figure 5: Concept for microdepots
(© City of Munich)

2.3.1 Introduction

Within this measure a flexible package system with first a set of four micro-depots (boxes) was designed to serve as an interface where cargo can be handed over from cars to cargo bikes and viceversa, aiming to increase the capacity and operating range of cargo bikes in the inner city

2.3.2 Implementation

Several boxes and logistic systems are tested, developing business projects together with delivery companies using cargo bikes. It supports their participation by providing four boxes in the area around the city centre of Munich.

The first key step was to find suitable micro-depots, this was done by a tender. The first four boxes are now tested by a delivery company.

To use also an alternative system, we changed the original plan and now we are conducting a second tender in order to test a second set of four micro-depots. We have seen that in the last 12 months, many new micro-depot companies and technologies has emerged. We also plan to include another delivery company in our test.

The involved stakeholders are

- RAPID, the delivery company, which works together with us from the beginning,
- Paul Wolff, the company which produces the first four micro-depots,
- PaketIN, the company which delivers the IT of the door-opening-system in the micro-depots, and
- Some yet unknown micro-depot and delivery company.

The required infrastructure is only a space of 2x2 metres on the public ground. The first four micro-depots did not need any construction works or electric supply as they just stand on the

ground and used solar energy. We will have to see if the second set of four boxes has the same requirements.

The measure is already in the implementation phase and probably takes until end of 2019 to further test the 4+4 microdepots and until mid 2020 to evaluate it

2.3.3 Business model and contractual partnerships

The City of Munich rents the 4 micro-depots and delivers the public space where the micro-depots are standing on.

Between the pubic authority (City of Munich) and the industry partner, the delivery company (RAPID) there was no formal contract signed. RAPID is the formal local testing partner named in the measure report. The micro-depots are rented by the City of Munich from the company Paul-Wolff with a renting contract. Paul-Wolff was selected through a tender. The rent is financed by Civitas Eccentric; the cost of the public space where the micro-depots are standing on is covered by the City of Munich. If the measure works fine, it is intended to continue it by municipal funding or by shifting it to private ground and fund it by the delivery companies (or a mix of both).

2.3.4 Critical challenges and success factors

Technical difficulties with the door opening system of the micro-depots were the main challenge. Also the technical support of the micro-depot company towards the delivery company was a challenge. The technical problems have been overcome, nevertheless with carry out a second tender of another set of 4 boxes is done in order to not only depend on one sort of micro-depots.

Key success factors are that the delivery company can use the micro-depots and that the use really leads to increased use of cargo-bikes and less use of vans.

Minimum requirement is that the micro-depots are working, both technically and IT.

2.3.5 Lessons learned form implementation/replicability

We learned that it is better to use two parallel micro-depot systems and two different delivery companies during testing.

2.3.6 Recommendations

We recommend to use two parallel micro-depot systems and two different delivery companies during testing

2.4 STO 7.4 Night delivery with clean and silent vehicles (Local partner 09.STO)

Figure 6: Vehicle that will be used for night deliveries

The measure is an expansion of the existing off peak delivery scheme which will contribute to the process of a modified regulation for night deliveries providing more data on noise and transport efficiency.

2.4.1 Introduction

Night time deliveries with silent vehicles offer the opportunity to reduce traffic congestion in day time without causing nuisance to citizens during night hours. The city of Stockholm's regulations currently ban heavy lorries between 22:00 and 6:00 due to noise, a regulation which could be adapted as a result of this measure.

Following a previous pilot project on night delivery, the city of Stockholm wants to expand the project with one plug-in electric lorry. The measure aims to investigate the effects of goods delivery during night versus day time and the implications and regulatory requirements of lifting the ban on night deliveries. Depending on the outcome, the measure could be upscaled to a city wide night delivery scheme that includes delivery with silent heavy lorries. In the long term, this could reduce congestion and noise and improve transport efficiency.

2.4.2 Implementation

The key steps that have been taken from the drawing board to actual implementation are the following ones:

- Design of procurement and evaluation process by the City of Stockholm and KTH.
- Procurement of a consortium consisting of a vehicle manufacturer (Scania), a transport company (Havi logistivs) and a delivery assignment (McDonald's), by the City of Stockholm and KTH.
- Procurement of the evaluation of transport efficiency.
- Inspection of delivery sights and change of parking regulations to fit night time unloading, by all included partners.
- Route planning for the night permit, by the City of Stockholm and Havi.

- Taking part of the overall timeline of the detailed technical development of the vehicle performed by Scania.

Deliveries were meant to go to six restaurants in the inner City. However, one restaurant had to be swapped to another one in a suburb. The reason was that the unloading point could not be accessed with the dedicated vehicle. The starting date for night deliveries has also been postponed several times due to technical difficulties in the delivery of Scania's first Plug-in Hybrid Electric Vehicle (PHEV).

Charging will be possible at one restaurant and at the transport operator's terminal. Charging at the terminal is necessary for the PHEV to run electrically while in the City

We will test geofencing to decide allowed speed and to force electric propulsion in the inner city. This will provide knowledge about the City's long term development of the use of geofencing

Regarding timeframe, 1,5 years have passed since procurement of the transportation consortium. Planning and implementation could probably have been done in six months. It is the development of the PHEV that has caused the long timeframe

2.4.3 Business model and contractual partnerships

The city of Stockholm decides who can perform night delivery with heavy vehicles. The PHEV is owned by Scania and Havi.

The procurement of the transport assignemtn consortium lead to a formal agreement between KTH and Scania regulating the economic contribution for the development of the PHEV used in the measure.

Development of the PHEV received an EU contribution of 1 MSEK. The rest is done with private money, and each partner have to contribute with its own time in planning. The transport assignment is a regular business agreement between Havi and McDonald's.

2.4.4 Critical challenges and success factors

Initial challenges consisted of difficulties finding the right model for the procurement performed by KTH. The bigger challenges in the rest of the preparation can be related to the development of the PHEV which has required more time than originally foreseen.

2.4.5 Lessons learned from implementation

Considering the replication potential of the measure, it is important to note that it will be only relevant for cities holding a night ban for heavy lorries. Since the actual deliveries will not start until January it is hard to give more recommendations. More information can be added in 2019.

2.4.6 Recommendations

Make sure to plan enough time for different procurement steps.

2.5 MUC 7.5 Neighbourhood oriented concierge system at the development area Domagkpark (Local partner 17.DOMAGK)

Figure 7: Cargo-bike at Domagkpark

Figure 8: Concierge service premises

The e-commerce market is growing rapidly resulting in high numbers of deliveries in residential areas. This situation can lead to conflicts with other road users, wrong parking, dangerous situations, air pollution and noise emissions. In Munich's Domagpark district (largely residential), the idea is to develop a partnership with logistic service providers and set up a Concierge Service for the area. Once the service is running, residents will be able to pick up delivered goods at the concierge, or even get their goods delivered by the local concierge with an eco-friendly electric cargo bike. The same service can be offered to post goods/parcels.

2.5.1 Introduction

With the concierge service, goods and parcel deliveries to the district are bundled centrally, and the last mile delivery is covered in an environment and people friendly way. The concierge functions as the central point of contact for parcel deliveries to the residential district and distributes deliveries by electric cargo bike to their final destination. In addition, residents can use the service to drop off parcels which they want to send. The service provided prevents individual distribution routes and reduces emissions.

Furthermore, the concierge service also serves as a neighbourhood centre for residents by offering a variety of additional services interesting for residents. It supports the neighbourhoods' mobility concept providing additional services for the community (for example, bike reparation service, bike reparation courses, maintaining the neighbourhood e-mobility station, etc.). It is also extended by other services as well, such as dry cleaning, locksmiths and other craftsman services. The concierge also acts as a community centre for the district and can operate as an information/contact point and a central location for socialising. The main requirement for the concierge service is to get centrally located rooms large enough for handling the logistics of goods and parcels.

The concierge system requires collaboration with delivery service companies

Main objectives are:

- Reducction of neighbourhood oriented freight transport (courier services).

- Reduction of repeatedly failed delivery attempts when the recipient is not at home.
- Reduction of car kilometres travelled, traffic congestion and dangerous parking, due to less delivery vehicles.
- Increased acceptance and participation in the neighbourhood-oriented mobility concept for the Domagkpark district.
- Synergies with additional services provided by the concierge. For example, repairing bikes, managing co-working spaces, etc.
- Providing a good example to others cities/districts by demonstrating the opportunities and hurdles of a multilateral cooperation with logistic service providers.

2.5.2 Implementation

The key steps that have been taken from the drawing board to actual implementation are the following ones:

- Development of the business and operational concept
- Identification of shop and service space/rooms
- Identification of potential logistic and parcel delivery service companies
- Contract agreement for shop premises made with shopkeeper
- Set up of an official partnership with logistic and parcel delivery service companies
- Development of a product marketing concept
- Soft Launch as a test-phase
- Integration of other neighborhood and community related business services (laundry, shoe services, handicraft services and facility management)
- Development of a parcel monitoring system
- Official opening of the concierge service shop
- Start of the product marketing campaigning
- Test operation for last-mile delivery service
- Further extension of other neighborhood and community related business services (for example energy management advisory)

As an adjustment of the initial plans to operate the Concierge Service in house, a change in business model was made. A professional partner for various secondary services and the operation of the concierge station was integrated. The partner, who already has experience in last-mile delivery service is contracted and runs the business. Further on it was decided to expand the services for other neighborhood and community related business.

The Concierge Station will take the name “Domagkwerk”.

Regarding the stakeholders that have been involved in the different implementation steps, the logistic and parcel delivery service companies are integrated and partnering with the concierge service as their “drop-off-point” in the district.

The service partner was integrated in the development of the operational concept of the shop as well as in the development of concrete services and products.

With regard to particular infrastructure required for the solution adopted, a suitable shop premises are a minimum requirement in order to be able to run the business. There should be enough storage space and the location must be centrally enough to have customers and residents to come

The measure is closely working together with the neighbourhood portal (M 2.7) in order to display all relevant information and services online. Further on there is the plan to integrate a “push-messaging-service” for parcel deliveries into the Moblity app “Luftlotse” (M 3.7). In cooperation with M 5.9 there are plans to set up a mobility consultancy and training for services and vehicles of the mobility stations in the living lab.

The overall planning for operational set up was done in less than one year.

2.5.3 Business model and contractual partnerships

The planning and implementation phases of the measure are funded by CIVITAS ECCENTRIC. Total costs, planned, for the measure are approximately 200,000 € over four years. 70% of the costs are funded by CIVITAS ECCENTRIC, and the remaining amount is provided by the lead private partner: Domagkpark Genossenschaft. Operation of the service is carried out by the Domagkpark Genossenschaft in cooperation with a private partner for logistics.

The operational business model is based on the main service for parcel delivery, however, it needs to be extended by further secondary services (laundry, facility management, craftsmen services, etc.) in order to be economically viable.

2.5.4 Critical challenges and success factors

The key challenges in implementation are the following:

- The expected interest of the market on a solution like this was too optimistic. The logistic and parcel delivery companies are also keen to have the last mile in their business portfolio. But they still have interest in drop-off-point. Therefore this is the first step of operation for the concierge.
- New approach towards end costumer interests is a long way. It takes time to convince residents to pay for services. The current market development facilitates the approach, since logistic and parcel delivery companies are planning to charge for the last mike delivery in future.
- The set up of an economically viable business model of the concierge. Since the logistic services are not profitable enough, other secondary services have been integrated into the service portfolio. This is also gaining awareness and acceptance within the residential area.

And the key success factors and minimum requirements:

- A well based and ongoing communication campaign to all residents in the area
- A trustful cooperation with the parcel delivery companies
- An efficient service partner offering secondary services
- Centrally located shop premises

2.5.5 Lessons learned from implementation

Outcomes regarding replication potential of this measure include:

- The shop premises must be centrally located and big enough for the services to be offered
- Parcel delivery companies must be contracted.
- When implementing this measure, most time is needed for negotiations with delivery service providers.
- B2B services can serve as a constant order situation

2.5.6 Recommendations

Main recommendations to policy makers and practitioners are:

- A traffic ban of logistic vehicles for the residential areas will highly facilitate this approach for sustainable urban logistics
- A central communication and information campaign is needed to raise awereness and acceptance
- A mix of different services with logistics as the backbone is the key success factor
- The integration of services into a local mobility/service app improves the interaction with custumers a lot

3 Lessons learned from implementation

With the aim of framing the ECCENTRIC measures within the general challenges and trends in urban freight, this section presents some general considerations on the procurement and implementation phase for WP7 Cluster 1: Efficient supply chains. The five measures already described in Clause 2 are being developed in three cities (Stockholm, Munich and Madrid) and represent specific cases and practices that can be aligned with identified European trends and recommendations in order to create a more general analysis.

According to the UE study on urban logistics (see clause 5. Sources/References), the six main relevant challenges in urban freight policy making are the following:

1: Use of Information and communication technologies
2: Treatment of logistics activities in Urban Vehicle Access Regulation Schemes
3: Engagement of stakeholders when implementing urban freight transport policies
4: Logistics schemes for E-commerce
5: The use of Environmentally Friendly Freight Vehicles
6: Indicators and data collection methods for urban freight distribution

These topics are coincident with the conclusions of the POLIS (Cities and Regions for Transport Innovation) Working Group on Urban Freight presented in the POLIS General Assembly held in November 2018 at Manchester. The vision of this network to focus on innovative technologies and policies for local transport is a key source for a general overview on the policy topics of interest in logistics trends and challenges:

– Air quality: Plans, Access Regulations, Low Emission Zones
– Clean & alternative fleet promotion: procurement of zero-emission goods & services, e-charging infrastructure, incentives & subsidies, etc.
– Space management and consolidation: multi-use lanes, micro-hubs, consolidation centers.
– Data

A correlation between ECCENTRIC measures with these cross-cutting themes likely to be relevant for most of European cities can be established as follows:

Measures **7.1** (Consolidation centre with EVs and local regulations for clean urban freight logistics) and **7.2** (Consolidating Stockholm municipal freights) are closely linked to Urban Vehicle Access Regulations/Air quality policies as key feasibility factors and drivers of innovative supply chains based on logistic hubs near city centres.

Key stakeholders: last mile logistic & delivery operators, city administration, real state agents

Measures **7.3** (Combining Cargo-Bike-Delivery with a flexible package system) and **7.4** (Night delivery with clean and silent vehicles) are associated with the promotion of environmentally friendly freight vehicles and also with smart urban space management.

Key stakeholders: vehicle manufacturers, city administration, last mile delivery companies.

Measure **7.5** (Neighbourhood oriented concierge system) deals with the change of consumer behaviour and how it affects home delivery and delivery collection. As a general context, the logistics schemes for e-commerce and their environmental impact lie underneath the measure specific activities.

Key stakeholders: consumers, parcel delivery and courier services, potential associated services and companies at district level.

Keeping in mind these connections, a broader analysis could be integrated during the next demonstration and evaluation phases to assess the expected impact and lessons learned of this cluster. The final objective of this is to expand the scope of the inferred conclusions on increased efficiency through new regulations and logistic chain solutions from the specific experiences implemented in Madrid, Munich and Stockholm.

4 Conclusions and Next Steps

The implementation of different urban freight logistics experiences within the ECCENTRIC project is producing valuable inputs for relevant logistic stakeholders and urban policy makers. With the aim of maximize the benefits of these experiences, the following activities are proposed:

- Complete the evaluation of the WP7 measures with a broader analysis aligned to the common challenges and trends of urban logistics identified at European level, enabling a more general understanding and replication potential.
- Develop a specific communication actions on ECCENTRIC urban freight measures and conclusions, integrating to WP7 other WP measures which are linked to urban logistics (e.g. MUC 6.3 Electric lightweight vehicles for car sharing and logistics, STO 4.9 Offering test fleets for freight purposes). Fact sheets (see Figure 9) and other processes already implemented by horizontal WPs constitute useful dissemination elements fot this objective.

Figure 9: Fact sheet of the consolidation center

- Analyze the local regulations, partnership and stakeholders engagement practices to foster clean and efficient urban distribution and reduce conflicts with other modes from the point of view of the ECCENTRIC experiences.

5 Sources /References

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