



2020  
**CiViTAS**  
Cleaner and better transport in cities

**ECCENTRIC**



## Replication Package: Innovative Policy Tools for Freight Logistics

Deliverable No.:	7.6
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 -37
Work package/Measure No.:	7
Work package Title:	"Towards better and cleaner urban freight logistics"
Responsible Author:	Juan Azcárate Luxán WP7 leader
Responsible Co-Authors:	WP7 measure leaders: Luis Tejero, Amanda Baumgartner; Johannes Horvath; Robin Billsjo; Maria Knorre; Enrique García Cuervo; and Matti Ojanpaa.
Date:	August 2020
Status:	Final
Dissemination level:	Public

2020  
  
**CiViTAS**  
Cleaner and better transport in cities  
**ECCENTRIC**



THE CIVITAS INITIATIVE  
IS CO-FINANCED BY THE  
EUROPEAN UNION

## Abstract

This document summarizes the main recommendations resulting from the Work Package 7 “Towards better and cleaner urban freight logistics” regarding planning and regulation, thinking in the further replication of these measures. The document analyses key challenges that should be addressed by municipalities when implementing policy tools on urban logistics. Some potentially replicable examples of innovative tools developed in the framework of ECCENTRIC project are provided.

General policy proposals and strategic recommendations from a broader scope, particularly how to integrate freight in urban mobility plans, are described. Those policy and collaboration tools result from both WP7 clusters (Efficient supply chain and vehicle technology) that group the measures, and most of them derived from cross fertilization between cities partners over the course of the project but also taking into account other European reports, European Projects related to these topics and research literature.

## Project Partners

Organisation	Country	Abbreviation
Ayuntamiento de Madrid	Spain	AYTOMADRID
Grupo de Estudios y Alternativas 21 SL	Spain	GEA21
Consortio Regional de Transportes de Madrid	Spain	CRTM
Empresa Municipal de Transportes de Madrid SA	Spain	EMT
Universidad Politécnica de Madrid	Spain	UPM
Avia Ingenieria y Disegno SL	Spain	AVIA
FM Logistic Corporate	Spain	FM LOGISTIC
Stockholms Stad	Sweden	STO
Kungliga Tekniska Hoegskolan	Sweden	KTH
Flexidrive Sverige AB	Sweden	FLEXI
Carshare Ventures BV	Sweden	CARSHARE
Ubigo Innovation AB	Sweden	UBIGO
Mobility Motors Sweden AB	Sweden	MM
Cykelconsulterna Sverige AB	Sweden	CYKEL
Gomore APS	Sweden	GOMORE
Landeshauptstadt Muenchen	Germany	LHM
Münchner Verkehrsgellschaft mbH	Germany	MVG
Domagkpark Genossenschaft EF	Germany	DOMAGK

Green City EV	Germany	GC
Green City Projekt GMBH	Germany	GCP
Technische Universitaet Muenchen	Germany	TUM
City of Turku	Finland	TUR
Varsinais-Suomen Liito	Finland	VSL
Turun Kaupunkiliikenne OY	Finland	TUKL
Western Systems OY	Finland	WS
Turun Ammattikorekeakoulu OY	Finland	TUAS
Gasum Biovakka OY	Finland	GASUM
Obshtina Ruse	Bulgaria	RUSEMUN
Club Sustainable Development of Civil Society Association	Bulgaria	CSDCS
ICLEI European Secretariat GMBH	Germany	ICLEI
FM Logistic Iberica SL	Spain	FMLOG

### Document History

Date	Person	Action	Status	Diss. Level
16/03/20	J. Azcárate	First draft	Draft	ML
17/04/20	CV/ IV	Revision	Draft	ML /PMG
20/04/20	J. Azcárate	Revision	Draft	ML /PMG
14/05/20	Ana Dragutescu	Replication quality check	Draft	ML/PMG
16/08/20	J. Azcárate	Revision	Draft	ML/PMG
18/08/20	Ana Dragutescu	Final quality check	Draft	ML/PMG
19/08/20	CV /IV	Final format check	FINAL	SYGMA

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

Dissemination Level: PMG = all the next roles; PC = Project Coordinator, SM=Site Manager, TC=Technical Coordinator, EM=Evaluation Manager.

### Disclaimer:

*The views expressed in this publication are the sole responsibility of the CIVITAS ECCENTRIC consortium and do not necessarily reflect the views of the European Commission.*

# Table of Contents

- EXECUTIVE SUMMARY ..... 6**
- 1 INTRODUCTION ..... 6**
- 2 SUMMARY OF THE WORK PACKAGE TARGET: INNOVATIVE POLICY TOOLS FOR FREIGHT LOGISTICS ..... 7**
- 3 FROM CIVITAS ECCENTRIC CITIES TO REPLICATION IN OTHER PLACES..... 12**
  - 3.1 EVALUATING THE REPLICATION POTENTIAL OF CIVITAS ECCENTRIC PROCESSES..... 12
  - 3.2 EVALUATION OF THE REPLICATION POTENTIAL OF OTHER EXTERNAL SOURCES ..... 13
- 4 EXAMPLE MEASURES ..... 16**
  - 4.1 STOCKHOLM FREIGHT PLAN..... 16
  - 4.2 SUSTAINABLE MOBILITY ORDINANCE – FREIGHT ACCESS REGULATION TO “MADRID CENTRAL” ..... 18
- 5 CONCLUSIONS..... 21**
- 6 SOURCES /REFERENCES..... 22**

## List of Figures

- Figure 1: Overarching analysis through EC guidance topics..... 10
- Figure 2: Policy tools on urban logistics..... 10
- Figure 3: Cross-cutting analysis to draw strategic conclusions ..... 13
- Figure 4: Freight and servicing action plan (TfL 2019)..... 14
- Figure 5: European platform on SUMPs ..... 15
- Figure 6: Stockholm Freight Plan (2018-2022) ..... 16
- Figure 7: Freight delivery partnership between the city and other stakeholders..... 17
- Figure 8: UVAR Madrid Central ..... 18
- Figure 9: Hourly distribution of freight vehicles access to Madrid Central ..... 19
- Figure 10: Dissemination of good logistic practices in Madrid..... 20

## List of Tables

- Table 1: Measures of ECCENTRIC Work Package 7..... 8**

## List of Acronyms

CB	Cost Benefit
CO <sub>2</sub>	Carbon Dioxide
D	Deliverable
EC	European Commission
EEA	European Environment Agency
EU	European Union
EV	Electric Vehicle
e.g.	<i>exempli gratia</i> (for example)
FCEV	Fuel Cell Electric Vehicle
GHG	GreenHouseGas
i.e.	<i>id est</i> (that is to say)
ICT	Information and Communications Technology
LEZ	Low Emission Zone
LBG	Liquid Biogas
MER	Measure Evaluation Report
ML	Measure Leader
MS	Milestone
NO <sub>x</sub>	Nitrogen Oxides
OCG	Observer City Group
PMG	Project Management Group
PT	Public Transport
RI	Return on Investment
SM	Site Manager
SUMP	Sustainable Urban Mobility Plan
SULP	Sustainable Urban Logistic Plan
TfL	Transport for London
UK	United Kingdom
UVAR	Urban Vehicle Access Regulation
WP	Work Package
WPL	Work Package Leader
WS	Workshop
WT	Work plan Table

## Executive Summary

This document provides guidelines on the innovative policy tools developed to accompany the measures in the two clusters of the ECCENTRIC WP 7 “Towards better and cleaner urban freight logistics”, including recommendations and lessons learnt, as well as conclusions. It is the result of an overarching analysis of the specific technical measures under the cross-cutting and integrated perspective established by the European Commission’s Directorate General for Mobility and Transport (EC Study on Urban Logistics, DG MOVE 2018).

The aim is to draw conclusions resulting from the complete measure cycle of design-implementation-evaluation beyond the conventional approach of replication and upscaling of particular solutions tested. This is done addressing underlying common concepts regarding policy and collaboration tools to support facing the challenges of urban freight.

Three main policy lines are highlighted as key features to develop the integration of freight in urban mobility in a more effective way: planning processes (SUMP or Sustainable Urban Logistics Plan), through tools like local regulations and public-private partnerships. Two examples carried out in CIVITAS ECCENTRIC cities during the project are discussed to illustrate potential tools and processes: The **Stockholm Freight Plan** and the **Freight access regulation** to the low emission zone “**Madrid Central**”. Moreover, besides the measures developed in the framework of the CIVITAS ECCENTRIC project, other valuable information and examples have been used as valuable guidance.

This deliverable is an integral part of the WP7 Replication Package together with the two previous ones, corresponding to the clusters “Clean freight vehicles” and “Efficient supply chains” and is intended to stress the need to consider freight as a first-level topic of sustainable urban mobility planning in the local policy agenda.

# 1 Introduction

## 1.1 Purpose of this document and target group

### **Purpose of the document**

In CIVITAS ECCENTRIC, five cities (Turku, Stockholm, Ruse, Madrid, Munich) have implemented in total 51 innovative sustainable urban mobility measures. These measures have addressed a variety of urban mobility challenges, organized in different thematic clusters. This document is intended to furnish practitioners and decision makers with the information needed if they want to learn more about “Innovative Policy Tools for Freight Logistics” and how it relates to measures implemented in ECCENTRIC. Replicability of policy tools are highly dependant of local contexts and conditions, but general principles can be shared.

### **Target group**

This document is tailored following the practical needs of project developers and planners / technical staff fom cities to develop innovative measures regarding freight policy tools, to consider potential barriers and to be able to select the appropriate approaches to match their contexts. This document provides evidence that actions or approaches have been sucessfully implemented in a city and they have a good replicability potential.

## 2 Summary of the Work Package target: Innovative Policy Tools for Freight Logistics

The Work Package 7 of CIVITAS ECCENTRIC project is focused on urban goods distribution as one of the main issues for sustainable urban mobility at the local level. City administration, transport operators, researchers, vehicle manufacturers, retailers and real estate developers have cooperated to experiment innovative solutions for better and cleaner urban freight logistics in four CIVITAS ECCENTRIC cities.

The seven different measures included in WP7 cover a variety of fields in order to jointly contribute to the goals of this work package. They have been grouped in two broad areas or clusters targeted to the two action lines identified: Clean freight vehicles and Efficient supply chains for urban logistics. Their implementation became the foundation for the conclusions of this document.

Cluster	Measure	City	Partner(s)
<b>Efficient supply chain</b>	MAD 7.1 – Consolidation centre with EVs and local regulations for clean urban freight logistics	MADRID	AYTOMAD/ FMLOGISTIC/UPM
	STO 7.2 – Consolidating Stockholm municipal freights	STOCKHOLM	STO
	MUC 7.3 – Combining Cargo-Bike-Delivery with a flexible package system	MUNICH	LHM/MVG
	STO 7.4 – Night delivery with clean and silent vehicles	STOCKHOLM	STO
	MUC 7.5 – Neighbourhood oriented concierge system	MUNICH	DOMAGK
<b>Clean vehicle technology</b>	MAD 7.6 – Prototype for an ultra-low emission cargo vehicle	MADRID	AYTOMAD / AVIA / FMLOGISTIC / UPM
	TUR 7.7 – Introduce biogas for heavy duty freight vehicles	TURKU	GASUM / TUR / TUAS

**Table 1:** Measures of ECCENTRIC Work Package 7

The main findings and results from both clusters are described in specific deliverables: D.7.4 Efficient supply chain and D.7.5 Clean vehicle technology, as part of the WP7 Replication Package.

Nevertheless, even from the design phase of CIVITAS ECCENTRIC project, the aim of the WP7 has not only been to test and analyse specific innovative solutions, but also to take advantage of the common work of public and private partners of five European cities.

The goal has been thus to cover a more comprehensive approach in order to identify barriers and levers to systemic change on the urban logistics. These targets can be formulated as:



- Promotion of regulations to foster clean and efficient urban distribution and reduction of conflicts with other modes, giving to the use of the public space and to the urban safety a special relevance to achieve more sustainable urban environments.
- Promotion of cross-fertilization among practitioners from the partner cities to increase the impact of the individual measures and develop common guidelines and recommendations for other cities.
- Addressing the new strategies for first and last mile, looking for clean and efficient solutions for the logistics chains in dense urban environments.
- Addressing new challenges as the increase of the deliveries directly to every home linked to the boost of the e-commerce (specially expanded due to the lack of street commercial activity during unexpected events as the COVID-19 lock down).

The underlying key challenges of urban logistics that make the innovation on policy tools and guidelines necessary have been recognised at European level:

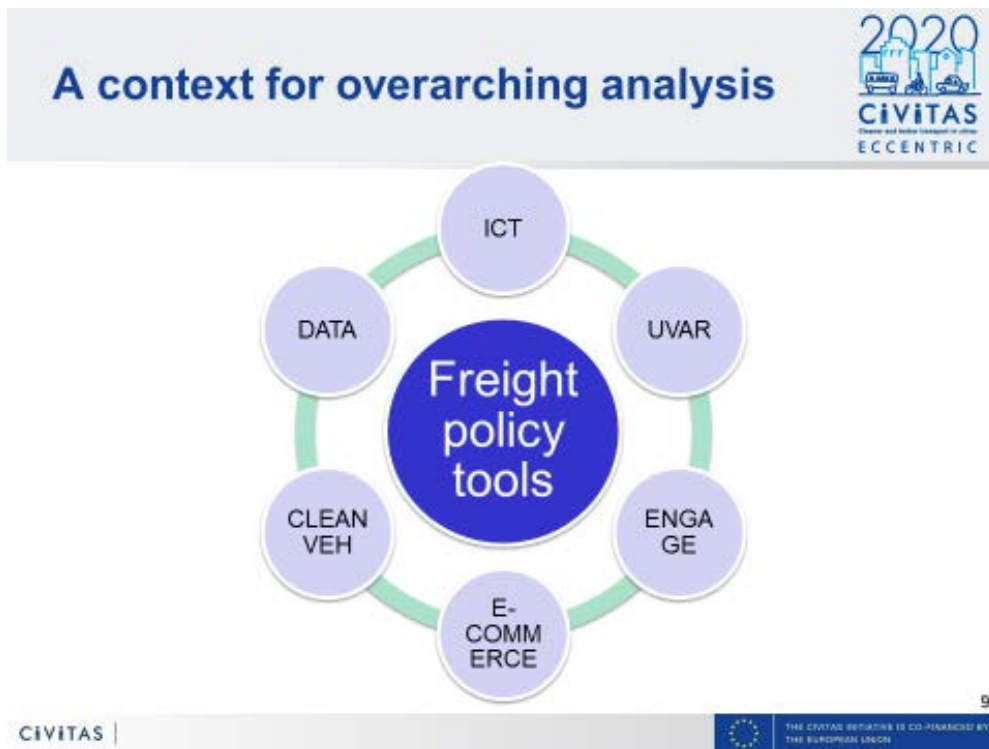
1. A lack of focus and strategies on urban logistics, and only a few cities with someone in authority responsible for urban logistics.
2. A lack of integrated vision of the goods and waste flows within the urban mobility and urban planning strategies and plans.
3. A lack of coordination among actors involved in urban logistics, and in many cases insufficient dialogue between city authorities and the private actors who operate there.

A lack of data and information, which makes it difficult to improve operational efficiency and long-term planning. The CIVITAS ECCENTRIC project has applied the six central topics recommended by the European Commission to tackle those challenges and produce supporting innovative policy tools. The six topics are the subject of a non-binding guidance series primarily aimed at public authorities such as municipalities, developed by the The European Commission's Directorate General for Mobility and Transport (EC Study on urban logistics – The integrated perspective, DG MOVE 2018 <https://civitas.eu/tool-inventory/ec-study-urban-logistics-integrated-perspective>) and are the following:

- Use of Information and communication technologies (ICT).
- Treatment of logistics activities in Urban Vehicle Access Regulation Schemes.
- Engagement of stakeholders when implementing urban freight transport policies.
- Logistics schemes for E-commerce.
- The use of Environmentally Friendly Freight Vehicles.
- Indicators and data collection methods for urban freight distribution.

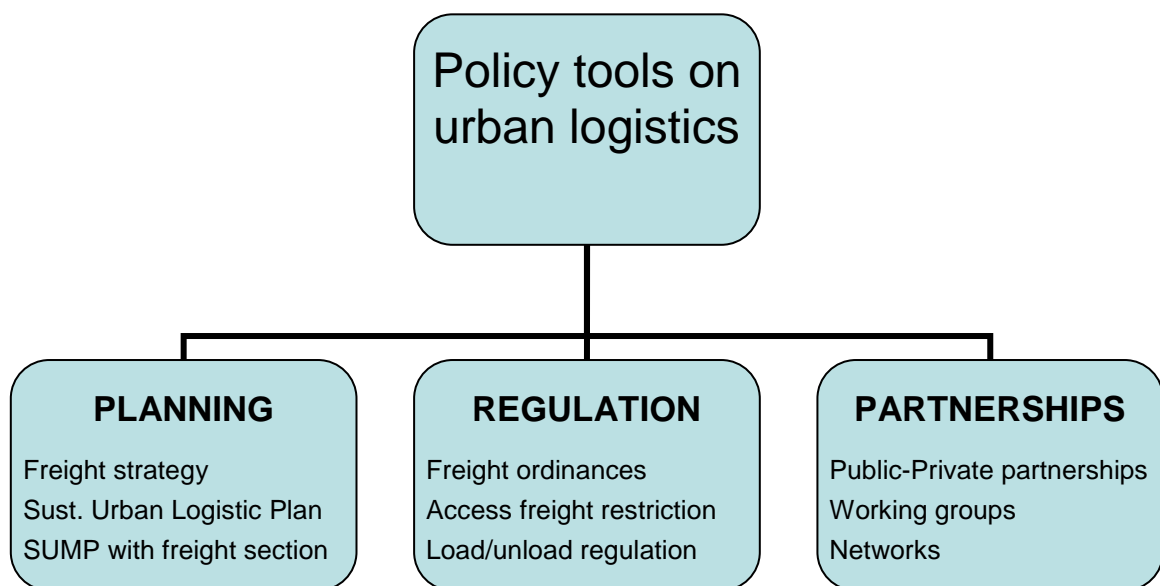
This guiding document gives advice to the local policy makers on urban logistics and has been used during the CIVITAS ECCENTRIC project for an overarching analysis of the

technical measures and other info exchange under the cross-cutting and integrated perspective established by the European Commission:



**Figure 1: Overarching analysis through EC guidance topics**

With this holistic approach to urban freight policymaking, some useful experiences and potentially replicable tools have been identified, principally in three categories of policy tools, as shown in Figure 2.



**Figure 2: Policy tools on urban logistics**

These three lines of action imply different timescales and visions and require different resources and methodologies. Ideally it should be developed as a whole because there are essential feedback loops between them.

Finally, regarding the policies that favour economic sustainability of first/last/only mile options in freight transport, the European Environment Agency EEA 2019 report “The first and last mile — the key to sustainable urban transport” (<https://www.eea.europa.eu/publications/the-first-and-last-mile>) provides useful information about the challenges to set up sustainable business cases and policies that contribute to the economic sustainability, finding ways to cover the extra cost for the trans-shipment at consolidation centers or micro-hubs.

Authorities can use innovative policy tools to change the socio-economic framework so that it takes better account of societal costs and value creation. Municipalities can adopt supporting regulation to give a competitive advantage to environmentally friendly delivery vehicles and methods. These can take different forms, such as congestion charges, road user charges, time-based access restrictions and access rules. Alternatively, the provision of a subsidy may encourage the use of consolidation centers through the reduction in external costs.

### 3 From CIVITAS ECCENTRIC cities to replication in other places

#### 3.1 Evaluating the replication potential of CIVITAS ECCENTRIC processes

From a holistic understanding of the WP7, the main recommendation for municipalities and decision makers when implementing policy tools is to analyse the results and processes of specific measures that take place in the city under the six topics approach described in the previous section.

Therefore, the seven specific measures developed and implemented within the CIVITAS ECCENTRIC project, have been scrutinized regarding the different topics of interest, with the aim of using the findings in a more overarching strategy of policy tools. The same strategy could be adopted by other cities to gather important information, results and engage stakeholders that will help in designing and implementing effective and innovative policy tools.

Just as examples of this process of drawing strategic conclusions from experiences, the following ones can be highlighted:

<p><b>Topic:</b> Use of Environmentally Friendly Freight Vehicles</p> <p>Measures analysed</p> <ul style="list-style-type: none"> <li>MAD 7.1 – Consolidation centre with EVs</li> <li>STO 7.4 – Night delivery with clean and silent vehicles</li> <li>MAD 7.6 – Prototype for an ultra-low emission cargo vehicle</li> <li>TUR 7.7 – Introduce biogas for heavy duty freight vehicles</li> </ul>
<p><b>Conclusions</b></p> <p>Among other solutions, electrification of light and heavy-duty commercial vehicles is emerging as a leading technology to achieve the objectives of sustainable freight. However, market uptake of zero emission vehicles with current logistics models is not yet matching Return on Investment RI and Cost-Benefit CB criteria, hence these new solutions are only competitive under very specific circumstances (pollutant and GHG regulations, Zero or Low Emission Zones, regulation in night delivery). Thus, this is not just a technological challenge but also a combination between technology-regulation options.</p>
<p><b>Topic:</b> Engagement of stakeholders when implementing urban freight transport policies</p> <p>Measures analysed</p> <ul style="list-style-type: none"> <li>MUC 7.5 – Neighbourhood oriented concierge system</li> <li>STO 7.2 – Consolidating Stockholm municipal freights</li> </ul>
<p><b>Conclusions</b></p> <p>These measures could be seen as a “sand box” of the barriers that appear to find agreements between policymakers, delivery companies and consumers. The complexity of urban logistics due to the different organizations’ cultures and strategies, logistics schemes, aims and stakes demands the development of city-specific coordination and collaboration channels for involvement of stakeholders.</p> <p>The views and interests of different stakeholders, including the city administration and the diverse actors of the logistics chains (delivery companies, senders, consignees and even customers) are diverse and somehow contradictory, so the need of a well established and permanent partnership to develop a common understanding of all the impacts, problems and solutions.</p>

In both CIVITAS ECCENTRIC measures a “reorientation” of the originally planned pathway has been needed, including a wider scope for the scheduled activities. Finally, both measures were implemented, so these processes of flexibility and adaptation are an important lesson learned when working with different partners per se.

<b>Topic:</b> Use of Information and communication technologies (ICT)
Measures analysed MUC 7.3 – Combining Cargo-Bike-Delivery with a flexible package system STO 7.4 – Night delivery with clean and silent vehicles MAD 7.6 – Prototype for an ultra-low emission cargo vehicle
<b>Conclusions</b> The application of ICT measures could be used as test beds of policy tools that could have a more general scope. In this particular case, the testing of geofencing tools employed by the City of Stockholm for checking night delivery and the application of courier company for locking/unlocking the boxes of the flexible package system in Munich could be applied to many other potential activities in urban logistics as enforcement tool for regulation of load/unload areas or management of multiple picking up and delivery points.

This cross-cutting analysis of the measures in the light of the six main topics identified by the CE (see above) constitutes an important step to produce a significant knowledgebase, which can be very useful for other municipal bodies to replicate and design their policy tools adapted to their particular contexts and experiences.

Figure 3 illustrates the process.

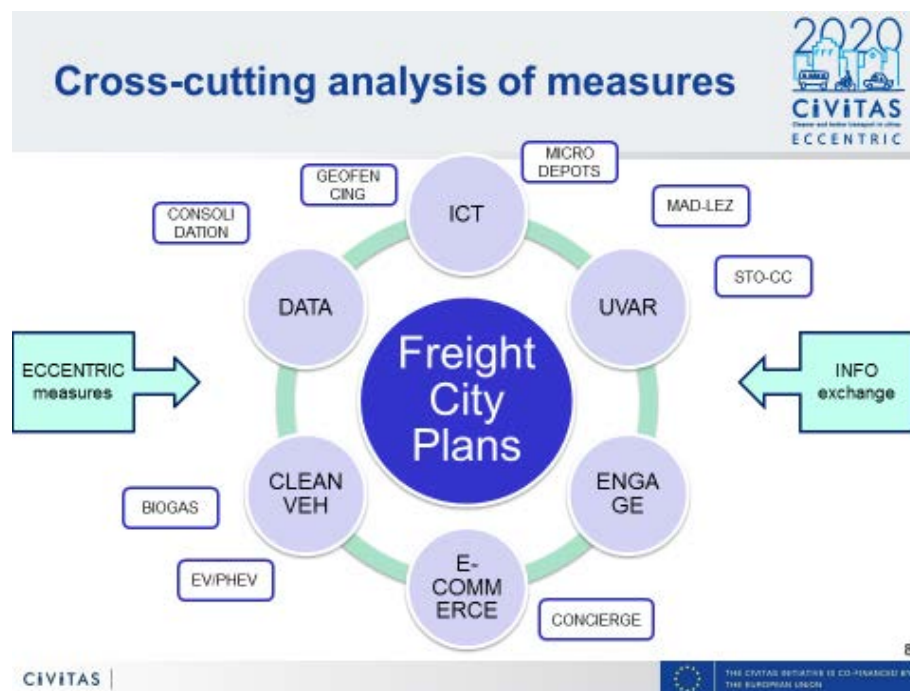
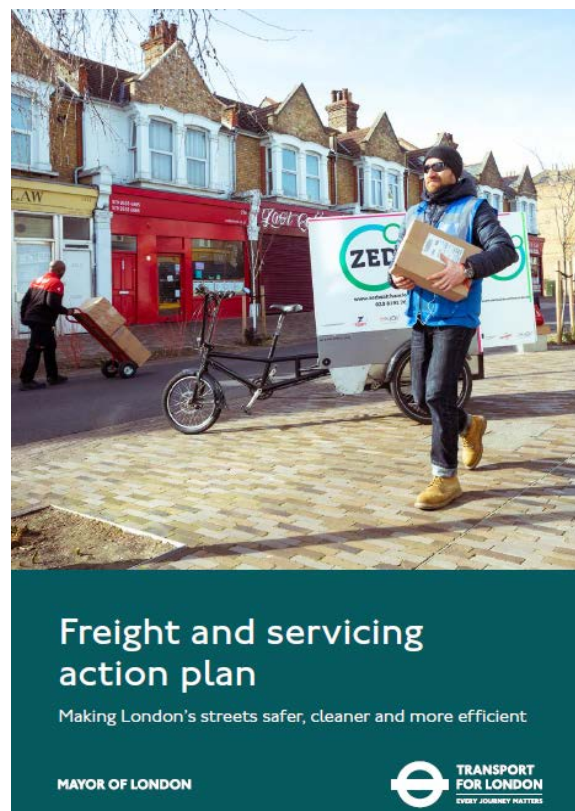


Figure 3: Cross-cutting analysis to draw strategic conclusions

### 3.2 Evaluation of the replication potential of other external sources

As it is shown in figure 3, in addition to the particular experiences (CIVITAS ECCENTRIC measures), it is useful to include in the analysis steps the inputs from other sources of particular interest that can be extremely useful to develop innovative policy tools (plans, regulations or partnerships) for urban logistics. It is also important to have the inputs from freight working groups of technical networks as, for example, the POLIS working group or other thinking groups and leading activities in urban freight in order to identify examples, trends and ongoing projects.

Regarding valuable external sources, across the interchange of information done by CIVITAS ECCENTRIC project, it is found that Sustainable Urban Logistic Plans are used more frequently in the UK than in the other European countries. SULPs (freight strategies, action plans or parts of a mobility plan) follow a structure that identifies the current situation and defines the strategic context, vision, targets, and objectives using selected policy measures, measures that are dependent on geographical scope. For example, the Freight and Servicing Action Plan of London provides a useful government guidance as well as sustainable strategies to incorporate to a city planning methodology. Apart from the conventional perspectives of clean and efficient freight, this Plan includes two essential aspects that are usually neglected: **Safe freight** and **Land for freight**.



**Figure 4: Freight and servicing action plan (TfL 2019)**

Regarding the incorporation of the freight topics in the Sustainable Urban Mobility Plans (SUMP) either as a transversal topic or when producing a separate document (e.g. Sustainable Urban Logistic Plans or SULP) there is guidance provided in the European Platform on Sustainable Urban Plans (see Figure 6).

These guidelines are useful to tackle with the complexity of a sustainable planning process of urban logistics, since the process should involve a variety of private actors from a very fragmented environment with different and often conflicting needs and goals. There are also useful to achieve a balance between the industrial requirement for high efficiency and low-cost operations, and societal requirements for low CO2 and high safety and sustainability.



**Figure 5: European platform on SUMPs**

## 4 Example measures

As examples of innovative policy tools carried out by CIVITAS ECCENTRIC cities, the Stockholm Freight Plan can be mentioned as a strategic tool and the Sustainable Mobility Ordinance as a regulatory tool that regulates the low emission zone LEZ “Madrid Central”. Despite the differences due to the different nature of both tools (planning versus regulation), the private and public partnership and collaboration is a common key element.

### 4.1 Stockholm Freight Plan

#### Introduction

Stockholm makes urban freight an integrated part of its mobility plan. The purpose of the Freight Plan is to take a holistic approach to the City’s goods-related work and pointing the way forward. By means of this plan, the City wishes to clearly communicate its perspective on the development of freight transport and create the right expectations amongst key industry stakeholders.



**Figure 6: Stockholm Freight Plan (2018-2022)**

#### Implementation

The Action Plan, designed for the period 2018-2022, has been organised into six focus areas but it keeps a flexible approach to incorporate new activities to enable adaptability to a living world in which conditions change rapidly. Work with the various areas takes place in parallel and continuously. Also a close dialogue with other key stakeholders is aimed for, to allow potential synergies between different activities to be recognised when they arise. Each area contains several concrete activities.

The six areas are:

- Regulation and instruments;
- Freight transport expertise;
- Innovation and new technology;
- Space-efficient urban logistics;
- Freight by rail and water;
- Strategic land use.



As a transversal action, the collaboration between City administrations and companies is established as a prerequisite for ensuring the sustainable development of freight transport.



**Figure 7: Freight delivery partnership between the city and other stakeholders**

### Lessons learned from implementation

The participation in Research and Innovation projects constitutes an opportunity to test innovative policies and contributes to the planning and regulatory role of municipalities. For example, the CIVITAS ECCENTRIC project became part of the Stockholm Freight Plan, particularly with the two following activities:

#### Area: **Regulation and instruments**

Activities included in the Freight Plan:

- Conducting test projects for heavy freight transport at night, with a focus on enhanced knowledge of noise issues.
- Designing and implementing new regulations for heavy freight transport at night.

Supporting CIVITAS ECCENTRIC measure:

STO 7.4 – Night delivery with clean and silent vehicles (Stockholm)

#### Area: **Freight by rail and water**

Activities included in the Freight Plan:

- Conducting a pilot project for transport of construction waste by water in urban environments.

Supporting CIVITAS ECCENTRIC measure:

STO 7.2 – Consolidating Stockholm municipal freights, scope modified to cover ship transport of construction waste (see Deliverable D7.5) (Stockholm)

## Recommendations for replicability

Obviously, the planning tools are highly dependent on local context and conditions. Nevertheless, in terms of replicability, there are important settings and preconditions that have been used for the development of Stockholm Freight Plan and that could be useful for policy makers of other cities:

- Incorporate a Freight Plan at first level of the Sustainable Urban Mobility Plan.
- Provide flexibility mechanisms to the planned activities to face emerging issues.
- Create a strong partnership to guarantee coordination, follow-up, and sustainability of the measures.
- Include strategic land use for logistics as one of the work areas on urban planning.

## 4.2 Sustainable Mobility Ordinance – freight access regulation to “Madrid Central”

### Introduction

Madrid’s Sustainable Mobility Ordinance was approved in October 2018. Among its goals, one of the most relevant is represented by the protection of the public health by means of the improvement of air quality, developing the legal regulatory framework “Air Quality and Climate Change Plan of Madrid” (Plan A), which included the establishment of a low emission zone in the center of the city called “Madrid Central”, regulated by an UVAR.



**Figure 8: UVAR Madrid Central**

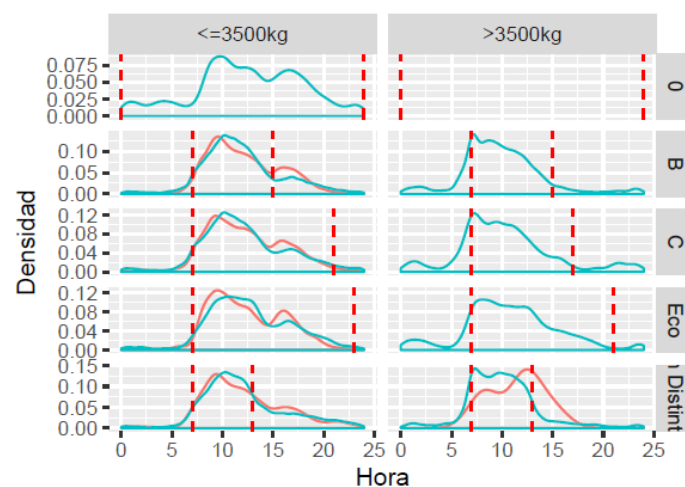
### Implementation

The Urban Vehicle Access Regulation (UVAR) developed in the Sustainable Mobility Ordinance was extremely sensitive to urban freight, taking into account the high economic activity of the dense central area (commerce, tourism, hotel/restaurants...etc) and, thus, the intense urban delivery associated.

The definition process of the freight access regulation to “Madrid Central” constitutes an innovative policy tool for the municipality in terms of a high collaborative work which involved logistic stakeholders in a way never performed before. These discussion and collaboration

with private actors processes were supported by CIVITAS ECCENTRIC project and constitute an example of how a technical project could provide useful inputs for the policy and regulation decision-making realm of a municipality. Two types of supporting activities could be distinguished:

- Drafting process of the policy and regulation documents: during the elaboration of both the Plan A and the Ordinance, a consulting group was created to discuss specifically the topics dealing with urban logistics. This group held periodic meetings to review the successive drafts of the policy documents and, although it had an advisory and not mandatory role, the collaborative work led to consensual texts and with an accurate technical vision adjusted to real life conditions of the market.
- The testing period of Madrid Central (Jan-June 2019): previously to the commissioning of the access restrictions and the fine tuning of the system implementation, a testing period with fully operating plate reading was set up. With the financing support of CIVITAS ECCENTRIC, a detailed study of freight traffic access and vehicle characteristics was performed for the period between January and June 2019. Data regarding the number of vehicles, incoming and outgoing records (gate and hour), environmental label of vehicles, size and type of vehicles, time of permanence...were gathered and analysed. A freight working group for the follow up of Madrid Central was set up.



**Figure 9: Hourly distribution of freight vehicles access to Madrid Central**

### Lessons learned from implementation

A local Public Private Partnership during the elaboration of key policy tools could significantly improve the level of agreement and feasibility of targets to be achieved through those policy tools. In the Madrid case, it has been the first time that Freight has become a first level topic within urban mobility planning and regulations development.

CIVITAS ECCENTRIC Project has contributed to the process, providing general guidelines and supporting the data collection methods for urban freight distribution. The data obtained allowed to make decisions based on scientific evidence instead of perceptions or biased views.

Unfortunately, and despite the recommendations done, the Freight Working Group has not been fixed as a permanent forum for discussion and collaboration, neither a specific Freight Department at municipal level has been created to deal in a consistent and continuous way with the complexity of urban logistics.

### Recommendations for replicability

For the implementation of a local partnership involving different freight stakeholders, public bodies, and other relevant urban agents, it is recommended to consider basic settings and preconditions to maximise its impact and operability.

Some important key factors have been pointed out in technical literature (see Ref [7]):

- There is a need for strong management and organisation of a partnership.
- It is important to have a variety of relevant stakeholders.
- In some partnerships, political involvement was important. In the case of partnerships discussing policy and regulatory tools, this political endorsement is crucial.
- Not only objectives are important, but also the dissemination of outcomes to maximise the opportunity for identifiable policy impacts. For example, in the case of Madrid Freight Working Group, obtaining real data for six months is a valuable outcome for other potential uses. Furthermore, a booklet of sustainable freight practices currently operating in Madrid was produced to highlight the efforts made by many operators to use clean vehicles and efficient supply chains.



Figure 10: Dissemination of good logistic practices in Madrid

- Outcomes are not just physical objects and projects, but equally important is the relationship and knowledge exchange between participants, since these provide the foundation for a further improvement in the urban freight situation.
- A focus on long-term possibilities is important.

## 5 Conclusions

Freight is one of the main components of urban mobility in terms of traffic and emissions with a high impact on the use of the scarce public space, in the urban safety and eventually with conflictual relationship with other mobility modes.

Therefore, the local governments must integrate urban logistics in the overall city transport policies for planning and regulation as a specific topic, with their own identity and set of attributes.

The progressive digitalisation involves a paradigm shift on consumer behaviour towards e-commerce and delivery patterns. These patterns are also constrained by increasingly restrictive environmental rules and the scarcity of public space to satisfy the demand for new uses, shaping an urban logistics scenario in constant change.

In this changing scenario, municipalities should adopt a flexible and adaptive approach. An innovative vision from the perspective of the circular economy combining the flows of goods and waste could increase the efficiency of the inverse logistic chains and enhance the sustainable management of recyclable materials, avoiding extra travels. Besides, an intelligent organisation of the scarce common space, nowadays subject of intense competition between modes and uses, could generate new opportunities for a clean and efficient distribution and collection of goods.

Consequently, rethinking internal structures to integrate freight within the organizational chart as a previous step to design and deliver innovative planning and regulation tools. Those policy tools can be delivered under different forms (Freight Plans, integrative SUMP, SULPs, Ordinances, Access Restrictions Zones, use and pricing of load/unload zones...etc.) but there are some common features, such as clear definitions on urban freight vehicles and supply chains, permanent inclusive partnerships with public and private stakeholders, strategic land use for logistics, uptake of electromobility in efficient logistic chains or ICT tools for enforcement.

The development of city-specific coordination and collaboration channels for involvement of stakeholders is an essential pre-requisite for policy formulation from municipalities. Public-private partnerships to achieve a fully understand logistic schemes, aims and stake demands are needed for the effective design, implementation and follow-up of those plans and regulations.

Innovative planning and regulation tools depend largely on different contexts as well as on political support, but the processes and approaches tested in ECCENTRIC cities could be successfully adopted. These conclusions might help to address by other European cities the UE commitment to reach a clean and CO<sub>2</sub> free city logistics in major urban centres by 2030, with the city administrations taking up a leading coordination role for establishing partnerships with the private sector in order to achieve this goal.

## 6 Sources /References

- “Study on urban logistics - The integrated perspective”. European Commission, Directorate-General for Mobility and Transport. Dec. 2017. Published DG. MOVE 2018 <https://civitas.eu/tool-inventory/ec-study-urban-logistics-integrated-perspective>
- “The first and last mile — The key to sustainable urban transport”. Transport and environment report 2019 European Environment Agency, EEA Report 18/2019 <https://www.eea.europa.eu/publications/the-first-and-last-mile>
- Stockholm Freight Plan 2018-2022. Stockholms stad. <https://start.stockholm/globalassets/start/om-stockholms-stad/politik-och-demokrati/styrande-dokument/stockholm-freight-plan.pdf>
- London Freight Servicing Action Plan. Transport for London.2019 <http://content.tfl.gov.uk/freight-servicing-action-plan.pdf>
- Fossheim, K., Andersen, J. Plan for sustainable urban logistics – comparing between Scandinavian and UK practices. Eur. Transp. Res. Rev. 9, 52 (2017).
- Maria Lindholm, Michael Browne. Local Authority Cooperation with Urban Freight Stakeholders: A Comparison of Partnership Approaches. EJTIR, Issue 13(1), (2013). <https://www.polisnetwork.eu/topic/urban-freight-2/>
- Madrid: Sustainable Mobility Ordinance (2018) [https://sede.madrid.es/FrameWork/generacionPDF/ANM2018\\_45.pdf?idNormativa=5ccdb732cef96610VgnVCM2000001f4a900aRCRD&nombreFichero=ANM2018\\_45&cacheKey=212](https://sede.madrid.es/FrameWork/generacionPDF/ANM2018_45.pdf?idNormativa=5ccdb732cef96610VgnVCM2000001f4a900aRCRD&nombreFichero=ANM2018_45&cacheKey=212)
- European Platform of Sustainable Urban Mobility Plans <https://www.eltis.org/mobility-plans/project-partners/european-platform-sustainable-urban-mobility-plans-platform>
- In CiVITAS web: <https://civitas.eu/eccentric>
- CIVITAS ECCENTRIC videos:
  - Consolidation centre for clean distribution in Madrid and prototype of a low emissions truck fit for Madrid urban centre.
  - Innovation on Stockholm urban logistics: Night silent freight last mile transport and construction waste transport by water.
- CIVITAS ECCENTRIC Deliverable D.7.1 Preparing for better and cleaner urban freight logistics. September 2017
- CIVITAS ECCENTRIC Deliverable D.7.2. Implementing efficient supply chains. November 2018.
- CIVITAS ECCENTRIC Deliverable D.7.3. Implementing clean vehicle technology. December 2018.
- CIVITAS ECCENTRIC Deliverable D.7.4 Replication package: Efficient Supply chains. July 2018
- CIVITAS ECCENTRIC Deliverable D.7.5 Replication package: Clean freight vehicle technologies. July 2018

- Other recent urban freight European projects.
- SUCCESS Sustainable Urban Consolidation Centre for construction sites (Luxembourg, Paris, Valencia and Verona)  
<http://cordis.europa.eu/project/rcn/193217.en.html>
- U-TURN Rethinking urban transportation through advanced tools and supply chain collaboration in horizontal networks in Attika area, Milan and London urban areas.  
<http://cordis.europa.eu/project/rcn/193351.en.html>
- CCCB CITY CHANGER CARGO BIKE Facing the increase of commercial delivery services and private trips with the impulse of cargo bikes uptake for improving more sustainable logistics operations, public space improvement more engagement of citizens and reduction of traffic congestion. <http://www.cyclelogistics.eu/>
- POST LOWCIT Low noise and low-carbon freight delivery for postal operators ensuring last mile connections through optimised urban and long-distance transport.  
<http://correos.es>