



SUNRISE

Sustainable Urban Neighbourhoods
Research and Implementation
Support in Europe

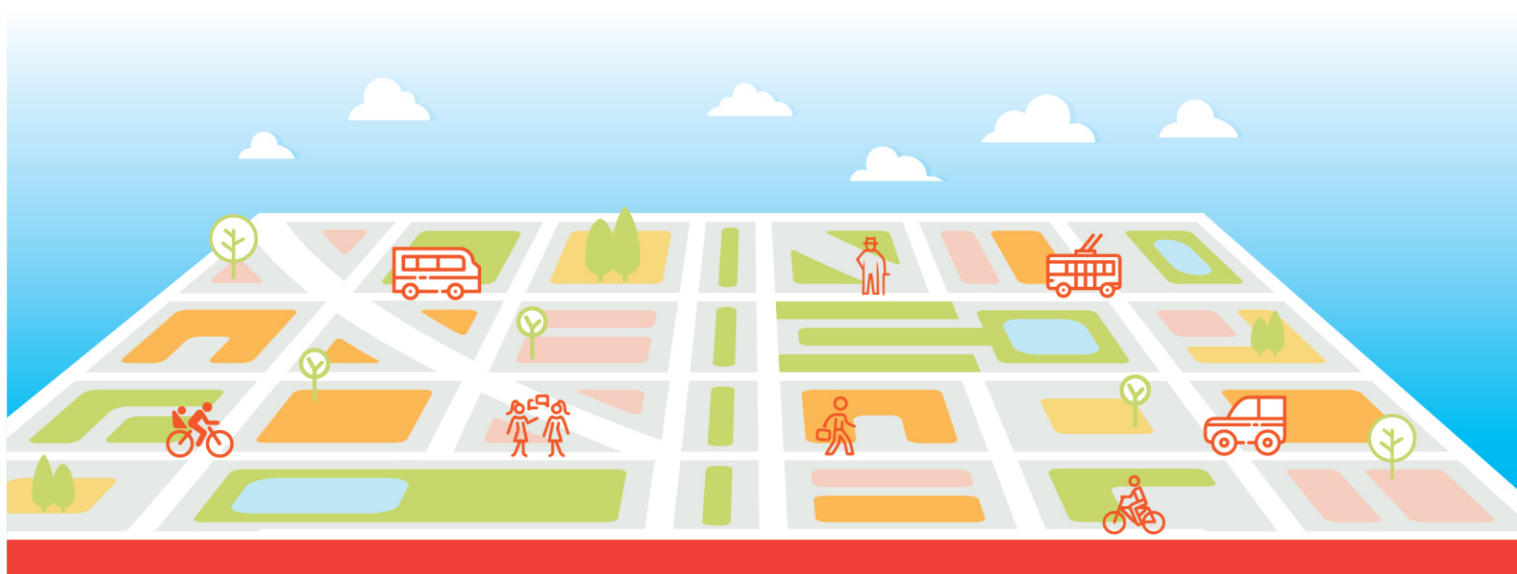
Innovative solutions to URBAN LOGISTICS

Recommendations for neighbourhood co-creation

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1. Importance of the cluster topic

Each of the SUNRISE neighbourhoods has its own particular mix of challenges. However, they all share common sustainable urban mobility issues.

In this scene, freight and urban logistics are sources of both problems and solutions. Problems, because freight creates pollution and congestion, can degrade lightly built or inappropriate infrastructure, and can make alternatives to cars such as walking and cycling appear unattractive or even dangerous. Solutions, because efficient logistics helps sustain retailers, services and amenities, and employment opportunities at the neighbourhood level, which helps address social issues and can reduce the demand for longer distance travel.

Europe's level of urbanisation is expected to increase to approximately 83.7% in 2050¹. The development of cities and their continuous growth has an impact on consumers' routines, as changes in urban mobility may produce a change in consumption habits. For instance, a city with pedestrian and zero emissions zones may inspire people to walk to shops whereas a congested city may lead to more ecommerce demand. The SUNRISE cluster on urban freight and logistics is an important node for integrating both passengers and goods with the aim of contributing for the improvement of the quality of life at the neighbourhood level.

On the other hand, due to the growth of the e-commerce, traffic restrictions in city centres and other reasons, the model of consumption and distribution in cities and neighbourhoods has evolved. This evolution impacts goods mobility and impacts the quality of life of inhabitants, creating new elements and needs (Figure 1).

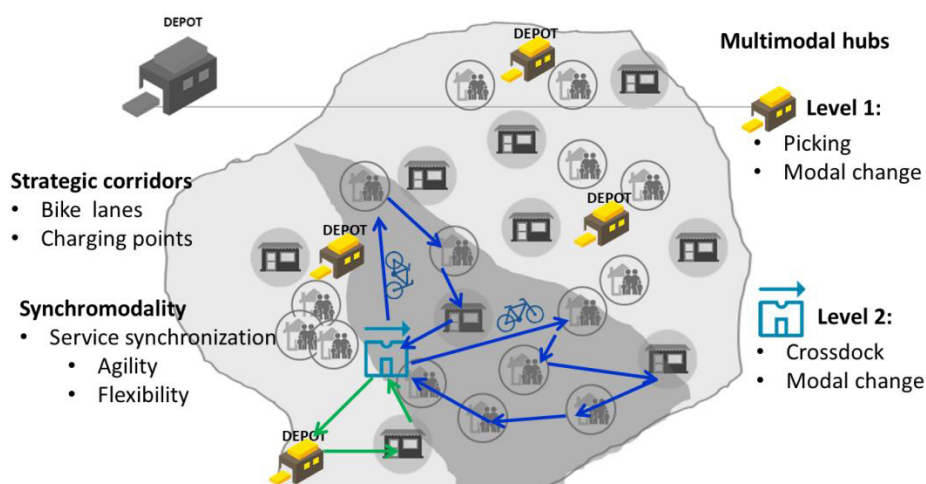


Figure 1 Evolved model of distribution/consumption at cities/neighbourhoods

¹ https://ec.europa.eu/knowledge4policy/foresight/topic/continuing-urbanisation/developments-and-forecasts-on-continuing-urbanisation_en



Within the “innovative solutions to urban logistics” cluster there have been four main different approaches recommended for particular neighbourhoods in the project, as well as an additional two approaches for the take-up cities, as it can be seen in Figure 2:

- Participatory budgeting (Zugló-Törökőr)
- Soft measures in mobility for implementing urban freight-related actions (Neo Rysio-Thermi)
- Implementation of a Neighbourhood distribution center (Lindängen)
- Horizontal collaboration practices (Southend-on-Sea)
- Sustainable Urban Mobility Plans that integrate also freight transport
- General best practices



Figure 2 Summary of the cluster recommendations



2. Cluster Recommendations

2.1. Zugló-Törökőr: Participatory budgeting

Participatory budgeting is an open decision-making process, in which citizens decide where to spend part of public budget.

Participatory budgeting is an excellent example of a participatory process that can lead to the implementation of sustainable solutions for mobility issues at the neighbourhood level, including those relating to urban freight. Participatory budgeting follows a co-identification, co-development, co-implementation and co-evaluation approach, in line with SUNRISE's methodology.

This cluster provided support to Zugló to use this process for overcoming their mobility challenges. Support took the form of providing the best practice of the City of Zaragoza.



Figure 3 Best practice: Zaragoza participatory budgeting. Source: Zaragoza City Council.

The Spanish city of Zaragoza launched its first participatory budgeting process in 2016². Since then, around ten million euros every year are dedicated to the implementation of concrete infrastructure investment actions using municipal money at neighbourhood/district level. Voting can be done on-site or electronically. The procedure is generally as follows:

² <https://www.zaragoza.es/sede/servicio/presupuestos-participativos/>





Figure 4 Participatory budgeting cycle³

Typically but not exclusively, actions derived of applying the process, are the following:

- Creation of infrastructures: Urbanization, roads, road signs, street furniture, lighting, parks, garden areas, trees, fountains and hydrants, etc.
- Reform or replacement of infrastructures: Adaptation of parking areas, remodelling of roads and signalling, lighting reform, remodelling of parks, green areas, repair of fountains, etc.
- Construction or renovation of buildings: civic centers, open-care centres for the elderly, libraries, cultural centers, sports facilities, social service centers, other municipal spaces, etc.

Generally speaking, citizens don't propose actions that are directly related to urban logistics. Rather, urban logistics related proposals come indirectly through mobility issues relating to both passengers and goods transport, and the redesign of the urban space is closely linked with urban freight as well.

³ Adapted from zaragoza.es/sede/portal/presupuestos-participativos/fases



2.2. Neo Rysio-Thermi: Soft measures in mobility for implementing urban freight-related actions

Infrastructure is only one pillar in the whole framework of neighbourhood planning. Another pillar is soft measures that include information and marketing campaigns to encourage use of sustainable mobility, mobility management initiatives, and attitudinal and behavioural measures⁴. Normally, soft measures are difficult to implement as they are intangible and impact may depend on subjectivity of the people. Furthermore the behaviour that people engage in is structured by the system in which they operate. Nonetheless, it has been demonstrated that soft measures are necessary and a previous process of mental shift is needed.

Soft measures consist of solutions that impact the quality of life of inhabitants, often with low or medium financial investment.

Traditional urban freight distribution activities cause pollution, congestion, and noise. Some examples of soft measures that can help to tackle these challenges are:

- Size restrictions of vans and trucks for accessing particular zones in the neighbourhood; therefore, the distribution can be done manually, in parcel lockers, or with small vans, electric vehicles or bikes.
- Time access or time window access: In this case freight vehicles are only allowed to access the neighbourhood in a particular time window.
- Parking regulations: To provide more or fewer parking spaces for freight vehicles according to the neighbourhood's needs.
- Environmental restrictions: Limiting or banning vehicles with high levels of polluting emissions.
- Ensuring nearby delivery areas, where parcel lockers may be settled at a distance no greater than 400m from the final delivery point.
- Modal shift: The use of other transport modes for the urban freight distribution, that is, typically tram or bus and this activity can be done during off-peak hours (mainly at night).
- Designating or eliminating street loading zones
- Dynamic routing: Routing delivery vehicles according to the current traffic situation.

The soft measures described above are often linked to other measures, structures and technologies helping people to change their travel behaviour towards more sustainable options. These include cycle lanes, information systems, integrated pricing, innovative incentive schemes, bike rental, pedestrian areas etc.

⁴ https://ec.europa.eu/energy/intelligent/projects/sites/iee-projects/files/projects/documents/midas_soft_measures_for_sustainable_mobility.pdf



Soft measures can lead to a shift in mentality that further stimulates the adoption of new solutions, but they can also result in resistance among some stakeholders who do not wish to implement such measures. Age and digital literacy are some of the sources of gaps that must be filled (for instance, some people may find it technologically challenging to use a new parcel locker near their home). The INDIMO project⁵, a recently EU-funded Horizon 2020 project, aims to extend the benefits of digitally interconnected transport systems to people that currently face barriers in using or accessing such solutions.

In the framework of SUNRISE project, urban logistics cluster provided support on this topic to the neighbourhood of Neo Rysio in order to help them to select sustainable interventions to be implemented in SUNRISE. In particular, the step regarding mental shift can be achieved through the engagement of citizens using surveys or participatory processes. This includes, for example, engagement of citizens for the purpose of:

- Improve accessibility to schools
- Better use of public space by shifting to a model of multi-use sharing space - with time windows allowing un/loading activities, parking or traffic flows
- Better alignment of shops and stores schedules
- Participatory budgeting

Sometimes mental shift can be accelerated by external events. A recent example is the increased e-commerce at neighborhood level that the COVID-19 crisis has promoted. In this context, many small businesses have gone online, on their own or integrated in local e-commerce platforms. At the same time, consumers have rapidly adapted to new business models⁶.

2.3. Lindängen: neighbourhood distribution center

Neighbourhoods can be more sustainable by sharing resources for logistics activities. Horizontal collaboration is also a good example of co-implementation at neighbourhood level.

The neighbourhood of Lindängen has a series of characteristics that would make the implementation of this solution very interesting. Lindängen is home to a very young population. Also, employment rate and per capita income are below the city average. Parking is reserved in underground garages and outside the neighbourhood. Bike lanes and pedestrian paths connect residential areas with its central amenities, shops and services⁷. There are a few public buildings in the area, such as the library, which currently are underused. One of those facilities could be used as “neighbourhood distribution center” (mimicking urban distribution centers). Youngsters could then use cargo bikes for the proximity deliveries. This would also lead to the creation of new jobs and to reduce the noise and carbon footprint in the neighbourhood.

⁵ <https://www.indimoproject.eu/>

⁶ <https://www.som.polimi.it/en/covid-19-the-impact-on-b2c-ecommerce/>

⁷ SUNRISE D1.2 Neighbourhood mobility dossiers



There are many European projects that encompass such measures (at city level) such as C-LIEGE⁸, BESTFACT⁹, ENCLOSE¹⁰ and FREVUE¹¹; all of them include actions that show good practices in last-mile distribution.

The figure below illustrates the best practice of the FREVUE project in the city of Madrid. In the framework of this project a Consolidation Centre was established at the periphery of Madrid city centre: at Legazpi's Fruits and Vegetables Market, one of the oldest and most iconic markets of Madrid, which was also restored within this project.

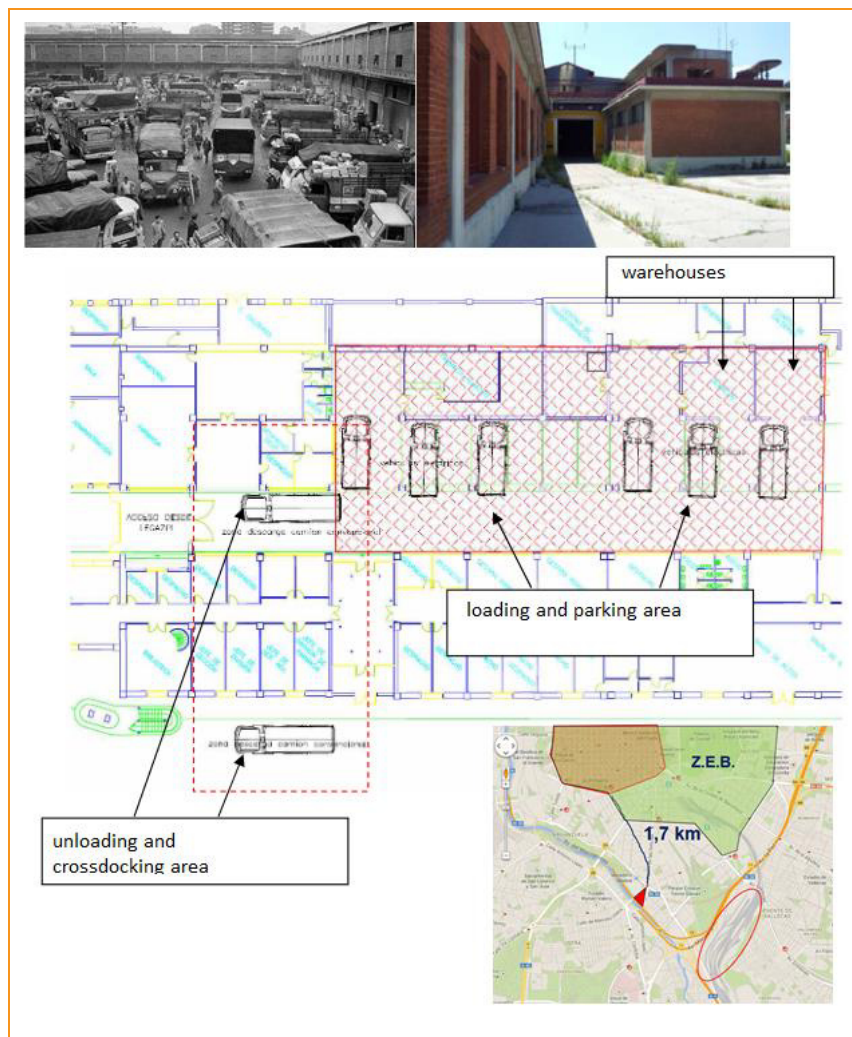


Figure 5 Best practice: FREVUE project. Source: Madrid City Council¹²

⁸ c-liege.eu

⁹ bestfact.net

¹⁰ enclose.eu

¹¹ frevue.eu

¹²

https://www.madrid.es/UnidadesDescentralizadas/Sostenibilidad/EspInf/Energia/CC/03Energia/3bMovilidad/3b05Distribucion/FicherosCambiar/ProyFREVUE_FPC.pdf



2.4. Southend City Centre: Horizontal collaboration for a more sustainable neighbourhood

The case of Southend presents a main street with lots of clubs and restaurants, often perceived as unsafe because of a homeless population presence once stores are closed at 5pm. Southend proposes to improve the local taxi stop's visual appeal to create a better street atmosphere in general.

Loading and unloading of food and beverage delivery vehicles supplying the clubs, restaurants and cafeterias also detracts from the main street's appeal, either blocking the main street where there is little space or taking place in parallel or side streets. Food and beverage deliveries usually are made by different suppliers and occur several times per day.

Applying the concept of horizontal collaboration to the provision of supplies to food and beverage businesses is a good idea as it improves the image of the area and is closely related to the concept of better use of public space. A neutral trustee (typically a logistics operator, but it can also be promoted by local authorities) consolidates the deliveries to be served in the city center, maximizing the load factor of the vehicles. Studies show that particulate matter and NO_x emissions can be reduced by 29% and 22%, respectively¹³. Many European cities have attempted to implement this concept¹⁴, however it must be pointed out that, in order to produce lasting results and be economically sustainable over time, there are some challenges regarding stakeholder engagement, impact modelling, and contract durations that must be overcome.

Southend city planners have been working for months on the redesign of the main street, for the creation of a better atmosphere and a more pleasant use of space. Considering all the variables, the cluster made some recommendations to the city, along the lines of:

- **Zero (or low) emissions urban freight distribution practices:** Examples of this include mobile depots or the implementation of microterminals in neighbourhoods. Special access will be given to neighbourhood's freight distribution when traffic restrictions are implemented. These practices are also linked to the use of bikes, new jobs creation, and rehabilitation of underused municipal buildings (as microterminals). The concept of superblocks has also been implemented in several neighbourhoods, as it establishes perimeters of 400m² where traffic is restricted, and it promotes better and healthier lifestyles by using bikes and proximity markets. Proximity replenishment of goods and the increase of quality standards of life can be achieved in combination with those superblocks. The perimeter also ensures that there is public transport in a walking distance.

¹³ Morganti, E., Gonzalez-Feliu, J. (2015) City logistics for perishable products. The case of the Parma's Food Hub. *Case Studies on Transport Policy*. 3(2), 120-128.

¹⁴ <http://www.prosfet.eu/PROSFET/wp-content/uploads/2018/05/Transitioning-Urban-Consolidation-Centres-initiatives-in-successful-operations.pdf>



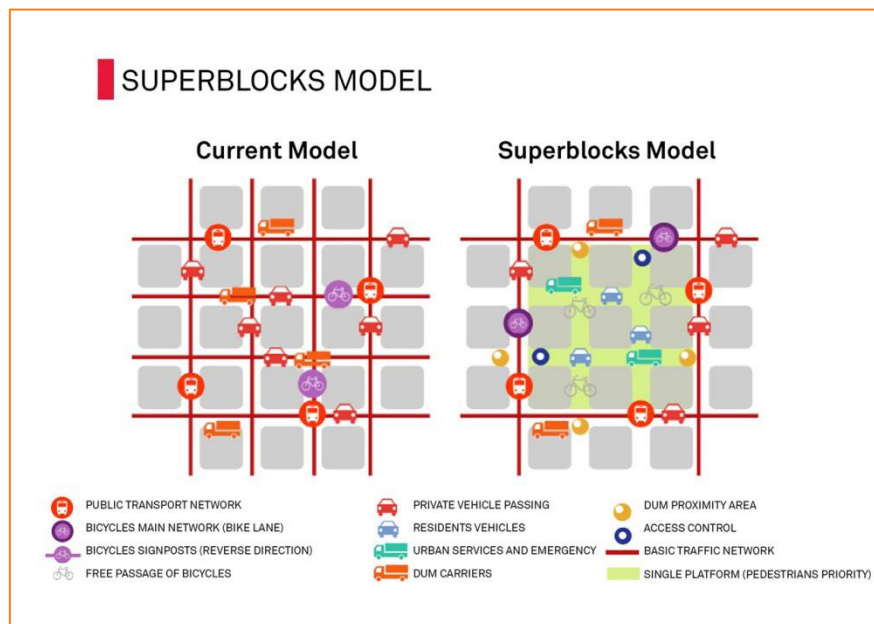


Figure 6 Super-blocks model. Best practice from Barcelona (Image from Ajuntament de Barcelona).

- **Waste transport collection and recycling:** Sensors in trash bins send a signal when the bins/containers are full, therefore reducing the number of collection trips and consequently the number of km driven by waste and recycling vehicles within the neighbourhood. This system provides a better quality of life as it reduces the traffic and carbon footprint in the area.



Figure 7 Sensor inside a glass container. Best practice from the Municipality of Calatayud. Taken from the European project Synchronicity¹⁵

- **Mixed passenger/freight transport systems at city/neighbourhood level:** There have been some initiatives to combine people with goods in public transport modes (metro, tram, train, etc). This practice is called “cargo-hitching”. Public transport systems can also deliver goods in the off-peak hours (at night) from the outskirts to the city center or

¹⁵ <https://synchronicity-iot.eu/>



to a specific neighbourhood. Last-mile can be covered by electric bikes or non-pollutant modes.



Figure 8 Best practice of cargo-hitching (share tram) in Saint-Etienne¹⁶.

- **Improve road safety:** Educational programs need to be promoted for both the delivery companies and the local citizens. Citizens need to learn about the continuous changes that cities are facing in terms of traffic lights control, tram tracks, pedestrian areas, loading and unloading areas, etc. in order travel safely via the mode of their choosing. Cities should become healthier and more pleasant places for walking and for facilitating mobility, and education and road safety must go hand-in-hand. Education must be ensured for citizens but also education should be ensured for truck drivers and transport operators, as they are part of the neighbourhood activity every day.
- **Implement motherships:** A big truck acting as a mobile depot, containing smaller and non-pollutant transport modes (i.e. bikes and electric tricycles) to make the daily deliveries in the neighbourhood. This is an idea that some companies such as postal services are considering for the delivery of goods^{17,18}.



Figure 9 Best practice: TNT-express mobile depot in Brussels¹⁹.

¹⁶ http://www.citylab-project.eu/presentations/180423_Brussels/17Mazzarino.pdf

¹⁷ http://www.straightsoil.eu/demonstration_B.htm

¹⁸ <https://www.fleeteurope.com/en/last-mile/smart-mobility/united-kingdom/features/ford-last-mile-initiative-gnewt?a=THA13&t%5B0%5D=Ford&curl=1>

¹⁹ <https://www.tnt.com/corporate/en/data/press/2013/05/tnt-express-introduces-mobile-depot-in-Brussels.html>



2.5. All neighbourhoods: How to build a Sustainable Urban Mobility Plan at neighbourhood level, integrating freight transport.

A Sustainable Urban Mobility Plan (SUMP) is a strategic plan designed to satisfy the mobility needs of people and businesses in cities and their surroundings for a better quality of life.

In contrast to traditional transport planning, SUMP is a continual planning process characterised by cooperation, goal-orientation and integration. Through the collaboration of actors and decision-makers from transport-related sectors, from the district to the national level, there is a coordination of activities with mobility relevance for the local and regional level. This coordination is based on sustainable mobility objectives and policies, and measures defined by the stakeholders.

SUMPs benefits at the neighbourhood level include²⁰:

- Improving quality of life;
- Saving costs - creating economic benefits;
- Contributing to better health and environment;
- Making mobility seamless and improving access;
- Making more effective use of limited resources;
- Winning public support;
- Preparing better plans;
- Fulfilling legal obligations effectively;
- Using synergies, increasing relevance; and
- Moving towards a new mobility culture.

²⁰ https://ec.europa.eu/transport/themes/urban/guidance-cycling-projects-eu/policy-development-and-evaluation-tools/sumps-and-cycling_en





Figure 10 Crucial principles for successful Sustainable Urban Mobility Planning. From ELTIS²¹

Integrating not only passengers but also freight in SUMP development can decrease noise, emissions and congestion in the neighbourhoods, improve road safety, enhance business economic development, and improve the efficiency and cost-effectiveness of the transportation of goods.

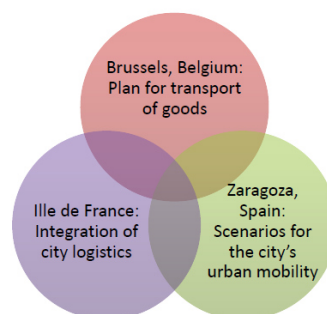


Figure 11 SUMPs integrating freight good practices presented in the webinar²²

After learning from cities that have implemented or are in the process of implementing a SUMP, one can realize how important the integration of passengers and freight from lower stages is.

²¹ <https://www.eltis.org/mobility-plans/sump-concept>

²² <https://www.eltis.org/discover/case-studies/integrating-urban-freight-brussels-sump-belgium>



Below there are some tips, that can be considered as guidance, for a successful integration of urban freight distribution into the SUMP of a city or neighbourhood:

- Make an initial list with all the actors involved in the process:
 - o Shippers
 - o Transport operators
 - o Receivers
 - o Neighbourhood residents
 - o Visitors
 - o Local Administration
 - o Traffic Managers
 - o Other actors
- Agree on the communication channels: During the whole process there should be interlocutors from each of the groups
- Establish the timeline along which the group is going to collaborate
- Ensure this group of stakeholders are also aware of the different actions related to citizens' mobility
- Involve other external actors to provide feedback
- Learn from other initiatives and collect sufficient information
- Put in common future development plans in the neighbourhood and how they will affect the initiatives from the group
- Most important, try to generate win-win initiatives. For instance, if a shipper needs purchase a new, less polluting fleet, try to incentivise this transition with low taxes, advertising the company as environmentally friendly, etc.

2.6. All neighbourhoods: General best practices

During SUNRISE's consortium meeting in Budapest, this cluster held a workshop with the project neighbourhoods and some additional take-up cities. The main objective was to share and discuss general best practices in the field of urban logistics and assess their impact at neighbourhood level.

Table 1 Best practices in urban freight distribution identified during the workshop

Best practices	Objectives
Vehicle regulation	Congestion reduction, Safety for citizens
Low emissions zones	Emissions reduction
Cargo bikes	Reduced lead times, sustainability
Transshipment points	Simplify deliveries due to e-commerce



Urban consolidation centers	Simplify deliveries due to e-commerce
Use of public transport	Integration of passengers/freight transport
Multiuse lanes	Sustainable use of public space
Temporary loading/unloading zones	Sustainable use of public space
Off peak hours deliveries	Sustainable use of public space
Use of new technologies	Efficiency, use of sensors, engagement with citizens

During the workshop also the following questions were discussed, which are questions that any neighbourhood can ask itself when considering their plans:

- What do we mean by integration in the context of urban freight?
- Why is it important to integrate urban freight with social and environmental considerations?
- How can urban freight transport be included as an integral element of a wider approach to bridge social and environmental objectives?
- Who needs to be involved for this?
- When do you think it would be good to integrate urban transport, considering social and environmental issues?
- Do you think mobility and proximity markets make sense without an integrated urban freight distribution? How about e-commerce?
- How do you envision the combination of freight with the use of public transport?
- How do you envision, in the medium term, your neighbourhood in terms of accessibility?
- Is your neighbourhood following a policy aligned with SUMP?
- Which measures are already implemented in your neighbourhood in relation with urban freight distribution?



Here we have gathered the main insights from the discussion with the project neighbourhoods. These can be useful for other neighbourhoods as challenges to overcome and recommendations to be followed.

- Some neighbourhoods are still far from implementing actions related to freight, prioritizing mobility of people without taking into account an integrated view of the problem.
- Although many cities have already implemented a SUMP, in practice just a few of them scale measures related to freight at neighbourhood level.
- Generally speaking, there is a lack of communication among the logistics operators, with no horizontal collaboration in the last mile delivery, which contributes to the problem.
- The current growth of e-commerce sales is perceived as an extremely important topic. Neighbourhoods recognize that there is a need for new measures to address it, such as cargo bikes and cargo bike sharing, micro hubs creation, urban consolidation centers, etc.
- Reverse logistics can also help to improve the neighbourhoods. This refers to situations such as waste disposals for special products (i.e. furniture), as well as garbage collection at residential level.
- Soft measures such as multiuse lanes and others related to traffic calming are popular at neighbourhood level. Participants agreed that establishing regulations for a better use of space and integration of both freight logistics and citizens' mobility, can improve neighbourhoods' liveability.

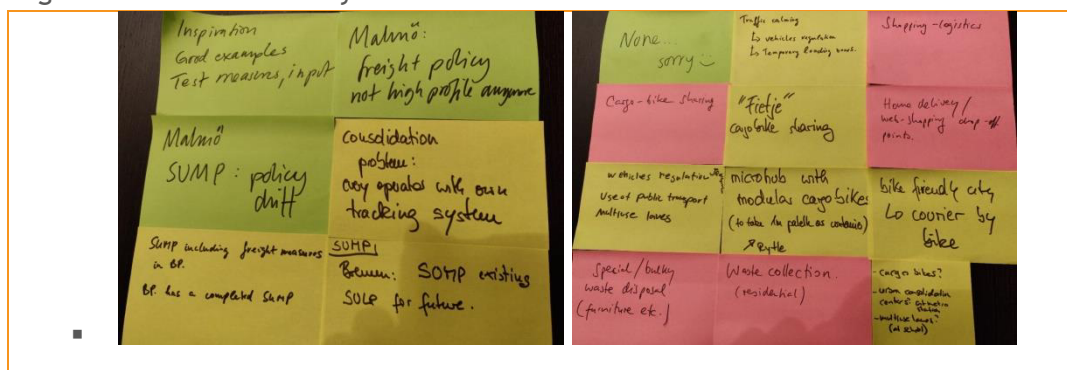


Figure 12 Some of the contributions from the workshop's attendees

