Recommendations on Urban Logistics

Expert Group on Urban Mobility, subgroup 4

Data Sharing for Zero Emission Urban Logistics

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Executive Summary

Data of the urban logistics can play a key role in decision making, measuring performance and short and long term urban planning. Data driven urban logistics policy making and transport operation can balance conflicting needs among various actors and support implementations of a set of policy objectives at the same time. However, how to enable data sharing from the private sector to the public sector has been a challenge. At the same time, data owned by the public sector or infrastructure operators, if being shared with the private sector, both sectors can also benefit.

It is recommended that data sharing should be on a voluntary basis when applicable. Data sharing should be purposed-oriented, i.e. any data shared must be sufficiently used for policy development or improvement of urban logistics operation. Any data sharing practices should be fair for all types of stakeholders, taking into consideration that local SMEs and international companies may have different requirements and capacities.

Communication is key to success for any data sharing schemes, to motive private sector either to share data with local authorities, or use tools developed by public authorities or data shared from public authorities. It is recommended that local authorities should develop appropriate communication strategies to communicate benefits of data sharing.

It is recommended that local authorities should use of existing data sources and IT infrastructure or solutions to collect or access data for policy making. Essential data sources for Sustainable Urban Logistics Planning (SULP) will be defined in updated versions of SULP guidelines.

It is recommended that cities to use simple tools, e.g. mobile apps, or existing IT tools to share data either with private sectors or collect data from them to ensure wide uptakes as well reduce operational costs. It is not advised a local authority to create and develop its own separate IT platforms for data sharing or Data Application Programming Interfaces (API). More standardised tools, rules and protocols that work across different local authorities and companies should be pursued, to facilitate comparison. Such activities may be carried out in the framework of the ongoing activities of European Mobility Data Space.

It is recommended that local authorities continue digitalise their regulations, information and assets, to enable optimised use of urban space and infrastructure including energy.

In the Annex, examples of current practices on data sharing have been provided as they provide evidence to the recommendations.

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1. Introduction – Data in Urban logistics

1.1 Why data sharing

Data that supports understanding of the urban logistics can play a key role in decision making, measuring performance and short and long term urban planning. Data driven urban logistics policy making and transport operation can balance conflicting needs among various actors and support implementations of a set of policy objectives at the same time. Urbanisation and continuously growing needs for urban space requires innovative dynamic management of urban space with support of real-time and historical data from urban freight transport.

Data holds the key to enable fair policies that can ensure sustainable and prosperous futures of European cities. Methods to collect and process personal mobility data, e.g. through travel diary for Origins and Destinations (O-D) matrixes, Floating Vehicle Data (FVD), and micro and macro transport simulation modelling. However, there is no well-established data collection from the urban logistics sector and modelling of urban freight data, since traditionally cities regarded urban freight transport as private entities' responsibilities and there was lack of concerns on data from the urban logistics in policy making.

Decades' efforts into sustainable urban mobility planning and policies, e.g. encouraging modal shifts to more sustainable transport modes, i.e. public transport, cycling and walking, have successfully reduced car traffic and needs for car parking. At the same time, increased e-commerce and associated last mile delivery, and transport for urban construction sites due to needs for new housing have created new challenges for cities. Increased use of smaller vehicles, particularly cargo-bikes, require micro-hubs closed to city centres. Converting empty underground parking spaces into micro-hubs for last mile delivery has been successfully implemented in some cities, e.g. Madrid. However, in the Netherland, cities have called stops any micro-hubs in city centre areas and all logistics hubs must be located in commercial areas. Deploying cycling lanes has been a successful measure to enhance safety for cyclists, thus encouraging modal shift to active modes. However, roads with deployed cycling lanes without loading spaces for business and local residents (particularly for transport of large volume of goods) may jeopardise businesses' competitiveness, and reduce quality of life for citizens.

All those trends and challenges require new policy frameworks to optimise use of urban space and ensure quality of life. To develop such policy frameworks, data from the freight sector is essential to provide sound evidence and analyses. Where to deploy micro-hubs, how many trucks must enter the cities, where are the congestions caused by urban freight transport – all those questions can be answered from data from both public and private sectors.

Several EU-funded research and innovation projects, e.g. the LEAD[1] project, have developed Digital Twins models for urban logistics networks, calling for more actions in data availabilities from the private sector in the urban logistics. Different from personal mobility data, urban freight data may have been available at the logistics service providers and shippers through onboard units, IoT digital platforms for operation and management. Therefore, dialogues on data collection into freight transport have been dominated by the topic of 'data sharing from the private with the public sector. However, the private sector also face huge challenges in accessing data from the public sector, infrastructure operators and other data owners, such as Urban Vehicle Access Regulation (UVAR), available parking spaces for loading and unloading, available spaces to establish micro-hubs, available charging facilities etc. Digitalisation of regulations and assets that can be used by the logistics sector could generate significant benefits to the urban logistics sector as well as citizens.

[1] https://cordis.europa.eu/project/id/861598

1.2 Data sharing between public and private stakeholders: the issues

Although data is important for policy making, real time transport management and long term planning, and data sharing seems holds many promises to enabled data-driven policy making, and achieve optimisation of traffic network operation. This is at the core of the electronic freight information regulation (eFTI) [2]. However, data sharing is not the magic that will solve all problems cities face. Limitation and costs must be carefully understood.

Lack of mutual trust, concerns on data security, costs, and potential misuse of data are barriers to data sharing between public and private stakeholders. Private stakeholders may be concerned that data shared with public authorities would have potential impacts on data security, the biggest threat being vehicle safety and the safety of the goods being transported (e.g. valuable) or to disclosure commercially sensitive information that may be misinterpreted by customers or be used by competitors.

Any additional costs associated with data sharing between public and private stakeholders will be difficult to be accepted without direct benefits. Meanwhile, many public authorities do not have adequate IT capacity, either hardware or human resources, to be able to process mass data with various formats. Dialogues on data sharing continue to exist but focus on the importance of data sharing without specifying what data to be shared, how to share, and how to use shared data. City authorities would need a significant investment into IT infrastructure and technical capacity to enable their regulation or other information available to the private stakeholders. Cities may also have no technical capabilities to process data from the private sector, particularly real-time data or mass volume data, if the private sector would agree to share data.

It is not realistic to expect all stakeholders in a city to share their data even – that would be equivalent to for urban mobility planning for people, all local residents share their travel diary. Collecting urban freight transport data should follow the same principles as mobility planning for people, i.e. a comprehensive approach of using various methods, such as real-time collection, surveys and simulation (modelling).

Public authorities should continue their efforts to make all information digitalised that can be used by the freight sector for improving operation, Benefits to private sectors should be evaluated against costs to both public and private sectors, e.g. how private companies use information from the public authorities and what kind of benefits should be reported to encourage more sharing.

1.3 Urban Logistics data categories and potential usage of the data

Urban logistics is complex with many actors involved. There are many data generated or needed by the urban logistics operations and also many data are needed for planning and operating urban logistics. Those data are in different formats, and owned by different stakeholders. Some data can be directly used. Some will required analyses to generate useful information and accumulated historical data are needed for analyses. Meanwhile, many data can be available from existing data sources, e.g. from traffic management systems or national databases.

Urban logistics data, both from the private and public sectors may be categorised as use of the transport network (vehicles journeys), freight data (types and volumes of goods entering and leaving cities), customers of goods, vehicles' information (type of vehicles, emissions[3]),

[2] Regulation (EU) 2020/1056 of the European Parliament and of the Council of 15 July 2020 on electronic freight transport information

[3] According to what CountEmissions EU Regulation will require once published

local regulations and available infrastructure (parking, charging facilities), worker information (number of workers, their working conditions).

Examples of key freight transport data are shown below in Table 1.

Table 1 Examples of Urban Freight Transport Data

Data related to urban logistics	Usage	Owners	Comments
Journey data of logistics vehicles (GPS) including vehicle-km, O-D, routing, stops, departure time;	Analysing the journey data to understand logistics traffic flow, associated congestions and bottlenecks of the networks, patterns of logistics flow and their impacts on overall network performance.	Logistics service providers (drivers)	Such data may be obtained through analysing ANPR data.
Vehicle parking (loading or delivery) on curb-side or dedicated parking spaces	Analysing usage of parking spaces and identifying needs for future parking spaces	Logistics service providers	Logistics service providers may concern that such data can be used for enforcement.
Types of goods entering and leaving cities	Analysing activities of urban freight transport	Shippers	Such data may be commercially sensitive and only shippers may have the information.
Customers of goods or shippers of reserved flow (waste collection or returned goods)	Analysing activities of urban freight transport	Shippers	Such data may be commercially sensitive.
Logistics vehicle fleet information	Analysing types of vehicles, their impacts on environment and the transport network.	Logistics service providers (owners of vehicles)	Such data may be obtained through national registration data with support of ANPR data.
Vehicle loading data	Analysing loading capacity of freight vehicles to identify opportunities for consolidated solutions	Logistics service providers (drivers)	
Warehouse (including micro-hub) location and capacity	Analysing usage of warehouses	Logistics service providers/warehouse operators	Some data is important for spatial planning.

Number of accidents of logistics vehicles involved, location, time and driver	Analysing factors that influence traffic safety, thus identifying measures to reduce accidents	Logistics service providers; road and traffic enforcement authorities	
Vehicle energy use and charging time and location (electric vehicles), driving distance per charging	Analysing use of charging infrastructure and energy provision for the logistic sector	Logistics service providers (drivers)	
Vehicle energy consumption and emissions (vehicle with conventional engine)	Analysing use of energy consumption and emissions from the logistics sector	Logistics service providers (drivers)	According to CountEmissions EU
Data on logistics workers (drivers and other workers)	Analysing workforce information including qualification that can provide support to policy making to protect workforces	Logistics service providers, warehouse operators (employers)	Online platforms (e.g. Uber Eat) are not logistics service providers, even though they are employers of large number of delivery personnels.
Average working hours of driver	Analysing working conditions and ensure that workforces of the sector is well protected.	Logistics service providers, warehouse operators (employers)	
Available training for safety	Information on workers' training, particularly regarding training on traffic safety	Logistics service providers, warehouse operators (employers)	
Public utility vehcles procurement	Information on tenders	Local authorites	
Local regulations	Urban Vehicle Access Regulations (UVAR) Parking policy Information on zones	Local authorities Infrastructure owners or operators	

2. State-of-the-art of data sharing in urban logistics

2.1 Research and innovation activities

As data sharing is an important topic, many research and innovation projects have been initiated to practice data sharing, including FlexCurb[4] and the HITS[5] project, as well as ongoing Horizon Europe funded projects, URBANE[6], DISCO[7] and UNCHAIN[8].

The FlexCurb project has been pushing forward the vision of Flexible Curb management concept to use curb sides more efficiently, thus increasing space availabilities for urban logistics operations. The project created a digital inventory of curb regulations that can be used by logistics service providers for searching loading zones and plan their operations.

The HITS project identified issues in data sharing such as:

- Data sharing is problematic as owners has no clear benefit form sharing them openly.
- Data is not always digitalized and standardized and cannot easily be connected.
- It is possible to collect data automatically real-time to be used at a systems level.
- Legal aspects can be overcome if priority is given.

The HITS project has explored possibilities of data sharing to place a city hub in Stockholm. Several concepts for the city hub have been evaluated. However, the freight forwarders were not able to see any value for such as city hub, even though data sharing must be a prerequisite to remove legal obstacles. This outcome from the project shows limitation of data sharing. Although logistics service providers can share data on needs for city hubs (including types of vehicles and goods for transport) converting public spaces into city hubs has face many challenges, e.g. concerns on safety of workers, security of goods, fair competitions among different stakeholders. Those concerns cannot be overcome by data sharing but by more dialogues and partnerships.

2.2 Available Practices

Much effort has been made by public authorities to digitalise information of public authorities is a way to share data with the private sector. Communication of information on Urban Vehicle Access Regulations (UVAR) to drivers in the vicinity of UVAR zones have been continuously improved by EU, national governments and cities. Information on roadworks, planned events, and incidents are disseminated to drivers via various channels. Cities, regional and national governments also make efforts to make the logistics sector to share their data at an easy and low cost way. However, some efforts into data sharing have not achieved their objectives, creating lessons learnt for future policy making. Various initiatives that allow easy data sharing from the private sector have translated the concept of data sharing into practices.

Examples of practices have been collected and analysing those examples have provided supports to developments of recommendations on principles and actions. Detailed descriptions of those practices are shown in Annex.

[4] https://www.eiturbanmobility.eu/projects/flexcurb/
[5] https://closer.lindholmen.se/en/project/hits-2024
[6] https://cordis.europa.eu/project/id/101069782
[7] https://cordis.europa.eu/project/id/101103954
[8] https://cordis.europa.eu/project/id/101103812

Table 2 Examples of Current Practices on Data Sharing

Short descripton of practice	Data shared and use of shared data	Analysis
ZFE.green (France) portal is a free tool designed to make French Low Emission Zones regulations instantly accessible and understandable, so that everyone can comply with the rules laid down in each territory.	Information on low emission zones of French cities from the public autorities; Data to be used by logistics service providers for planning and operation of freight transport in those cities.	The practice shows that cities should take a hormonised approach in policies and data sharing to enable an one-stop data sharing tool.
DUM 360 (Madrid, Spain), an Mobile application for the regulation and control of parking in Urban Merchandise Distribution reserves, exclusively for vehicles of professionals authorized to carry out Loading and Unloading activities in Madrid.	Information on available loading space; Commerical vehicle to share loading locations and times through the apps with public authorities	Through data collected by the App, freight flows, particularly operation times and use of loading bays have been analysed. The App is mandatory for all commerical vehicles since September 2023. This App makes data sharing mandatory but no additional costs to logistics service providers.
ITS-FMS interface (the Netherland) implements an open standard for communication about logistics and traffic via a single mobile App. All certified cloud service providers that have access to the relevent data, have to provide their services following this standard. The main goal is to make implementation of these services easy as possible for all software suppliers in the logistics marked, to make the traffic flow more smooth, predictable and save for everyone.	Traffic information including congestion, and route recommendations, traffic light information from the traffic control systems with drivers. Commerical vheicles to share their locations at real-time base for ITS applications (every second).	It has been developed with and already implementated by several marked companies with support of the Dutch government. Estimated market penatration rate is currently 2% of all trucks registered in the country. The low penatration rate limits benefits of the tool. More market campagain is planned.

Open Logistics Map in Helsinki, Finland (OLMap) supports data collection and delivery instruction sharing about urban delivery destinations. The data collection features are intended for logistics professionals but open to anyone, e.g. data on building entrances and last-meter routes were stored in OpenStreetMap.	Urban delivery destination and routes from logistics service providers to the public authorities and other users. Delivery routes and building entrance to be shared with all users via OpenStreetMap that can be used for making delivery instructions.	The OLMap data collection app allows creating data points on the map and associating it with an image, free text comments as well as structured data on features of interest to last miles logistics, such as entrances, gates, stairways and obstacles. It was designed for ease of use with a smartphone in the field as well as with a computer, supporting efficient export of documented features to OpenStreetMap via the online iD editor.
Freight and Logistics Observatory for Ile-de-France (**OFELIF**) launched in May 2024 to collect and share scattered information to build a common knowledge base, carry out active monitoring and contribute to the pooling between the different observation structures on the main themes of freight transport in the region.	It current provides dynamic maps that allow a territorialized visualization of available data concerning infrastructures and freight flows, logistics jobs and companies, and the road freight transport fleet, as well as various studies carried out.	It is an initiative of regional government to visulisation freight flow, impacts of freight transoirt on local economy including job market and environment at the region. Data sharing and analysis at a regional level is benefitial as many freight transport activities are carried out beyond the city boundary.

3. Recommended Principles of Data Sharing

Data sharing in order to guarantee long term benefits to cities and businesses should be:

- on a voluntary basis, when applicable
- purposed-oriented data sharing, i.e. any data shared must be sufficiently used for policy development or improvement of urban logistics
- for mutual benefits to both city and business
- ensuring commercial interests
- fair for all types of stakeholders
- using standard Apps to share data in order to minimise costs and burden on operation
- building on existing IT infrastructure or solutions

Use of regulatory methods to force businesses to provide data at their own cost is not recommended. Objectives of data sharing must also be clearly communicated to businesses. Data shared by the private sector should not be used to develop policies that will harm interests of the private sector. Data shared should be used to develop policies that benefit both the private and public sector. Shared data from the private sector should be used only for policy making, and not be used for enforcement without agreement with the data owners. Data that contain commercially confidential information or personal information should be treated carefully. Disclosure of such information to unintended parties must be prevented.

Local SMEs and big international players will have different practices. Data sharing initiatives for a city should take consideration of different needs and technical capacities.

Any actions to advance data sharing should be considered in accordance with data processing capacity and associated costs to achieve objectives. Data sharing should not be a standard alone solution that will be expensive and difficult to maintain. Use of existing IT solutions, data sources, and communications standards will save costs and ensure integrations with existing applications, creating wider acceptance by users. Tools of data sharing must be easy to use.

4. Recommended actions

R1: Support communication and education on the importance of data sharing (e.g. how data sharing allows development of policies that benefit all)

The term of data sharing can be easily misinterpreted by the private sector as that governments want all the data and it will be huge burdens and expensive. The private sector may also consider that governments holding the data for either no use, for enforcements, or for policies that will make delivery more difficult. Although importance of data sharing has been widely discussed but the focus is how to use the data for policy making and traffic management, there is lack of communications to data owners on potential benefits.

Recommended actions:

Action R1.1: Local authorities (and other government bodies) to develop communication strategies to the private sector on data sharing

Local authorities, when planning any data sharing activities, either data from private sectors to local authorities or local authorities to provide data that can be used by the private sector, should develop communication strategies on use of data and benefits of such activities to all

different stakeholders. Local authorities should engage with data owners to understand their needs and develop user requirements with potential users.

Communications to data owners are needed to motivate data owners to share data. Communicating benefits to potential users can help to promote use of tools and datasets. The communication can be done through social media and conversational media. Dedicated workshops with data owners and users are recommended to facilitate public and private dialogues.

Action R1.2: Public authorities should ensure transparent and timely consultations with stakeholders regarding data sharing needs.

When local authorities plan any data sharing activities, they should actively engage with private stakeholders and ensure that consultations with them are carried out in a transparent and timely way so that the data sharing needs are fully understood and endorsed by all the involved stakeholders.

Action R1.3: Develop guidelines on communication strategies to help cities and disseminate best practices

EU and national ministries can help in develop guidelines on communication strategies based on best practices and disseminate best practices on successful data sharing schemes that can help local authorities to communicate benefits in data sharing while motivating the private sector to support data sharing. This will be a part of the SULP guidelines.

R2: Use of apps and existing IT tools for data sharing

Data sharing should not be a burden to either private sector or public sector. It should create mutual benefits to ensure sustainability of data sharing. Expensive IT tools or dedicated platforms may be not easy for maintenance and updating, having potentials to become ‘abandoned websites" or "ghost tools”.

Madrid’s practice of using a mobile app to book loading bays that collects information from commercial vehicles and provide free parking time to the commercial vehicles demonstrates a low-cost and easily deployed data sharing tool which can be potentially replicated by other cities.

Recommended actions:

Action R2.1: Local authorities (and other government bodies) to consider use of apps or existing IT tools for data sharing

It is recommended that cities to use simple tools, e.g. mobile apps, or existing IT tools to share data either with private sectors or collect data from them to ensure wide uptakes as well reduce operational costs.

It is not advised that local governments create and develop its own separate IT platforms for data sharing or Data Application Programming Interfaces (API). More standardised tools, rules and protocols that work across different local authorities and companies should be pursued, to facilitate comparison. Such activities may be carried out in the framework of the ongoing activities of European Mobility Data Space.

Action R2.2: Initiate pilots with diverse types of stakeholders to co-create tools for data sharing

Cities or regional governments should initiate pilots with various stakeholders to co-create pilot projects to develop tools for data sharing. The co-creation can ensure that tools developed will be widely accepted by the logistics sector, thus achieving positive impacts. National and EU funding programmes should develop projects with focus on data sharing on urban logistics (beyond last mile delivery) and provide best practices on tools, impacts of those tools, user engagement and communication strategy.

Action R2.3: Participate in pilots to co-create tools for data sharing

Cities or regional governments, along with the private sector, should initiate and encourage the setting-up of pilot activities to co-create tools for data sharing. Private sector should test technical solutions and provide their feedbacks.

R3: Create an appropriate legal framework to enable reuse of available datasets

Many cities when implementing low emission zones have deployed ANPR cameras for enforcement. However, although the data from low emission zone enforcement systems can be used to analyse freight flow in the cities, often the legal framework does not allow usage of data for enforcement for other purposes.

Recommended actions:

Action R3.1: Review current available datasets and address barriers to prevent use of such data

Local authorities should review existing transport data collection methods and identify potential datasets that can be used to analyse freight transport flows and provide inputs to SULPs. Local authorities should understand legal barriers and take actions to remove them in order to maximise benefits of investments into data collection.

Action R3.2: Develop a common guideline on regulations and legal frameworks in the context of transport data collection and usage

EC, national ministries and city networks together with regional authorities are encouraged to cooperate on reviewing current practices on use of transport data collected from various systems, and develop a common guideline on use of data and related legal frameworks, e.g. enabling use of parking and low emission zone enforcement for freight flow analysis.

R4: Develop a dedicated approach to collect data on large volume of goods from private sector, e.g. construction materials and wastes, and business delivery etc.

Urban logistics policies and research are much focused on last mile delivery, while freight flow of large volume of goods are often ignored in policy making. There is still lack of data in understanding of the flow and their needs for spaces and appropriate traffic management strategies. Use of (real-time and historical) data can help cities and business in planning and real-time traffic management to reduce emissions and congestion, increase efficiency and enhance safety.

Recommended actions:

Action R4.1: Create a data sharing mechanism to enable data from construction companies or businesses to be shared with public authorities, and with other users (e.g. travellers) on occupied urban spaces and disruptions to traffic

Local authorities should be able to make use also of data from construction companies, waste collectors and other businesses that use HGVs that require parking spaces and generate disruptions to traffic. Such data, as accumulated historic data, can be used to analyse appropriate policies and traffic management schemes, e.g. dedicated parking space, priorities on traffic signals. Real time data should be shared via traveller information systems with travellers or other road users to minimise negative impacts.

Action R4.2: Carry out research into how to manage large volume of goods include data sharing and collecting best practices

There is lack of research and innovation projects on studying how to manage large volume of goods in the context of sustainable urban logistics. More research and innovation activities should be initiated on this topic, including data sharing and use of shared data for policy making and traffic management.

Such projects should engage with data owners (private stakeholders) to facilitate cooperation of data sharing. Private companies should actively participate in such projects to provide their needs and demonstrate benefits of data sharing to the private sector.

Research should also include how to use data to evaluate feasibility of construction materials' consolidation centres and use of alternative transport modes, e.g. inland waterways, to replace road transport.

R5: Digitalise assets, energy provision and charging infrastructure that can be used by the logistics sector and share the information of assets, energy provision and charging infrastructure

Increased e-commerce and use of cargo-bikes have required more micro-hubs and pick-up points (lockers). While sustainable urban mobility policies, e.g. encouraging use of active modes and shared mobility, low/zero emissions zones, have reduced usage of private cars. It is possible to use assets that have been designed for private cars for micro-hubs and pick-up points, e.g. dedicated car parks, and curb sides. Car parks and curb sides can be used as permanent or ad-hoc micro-hubs or pick-up points based on demands.

In addition to increased e-commerce, COVID-19 has brought changes in lifestyles, such as work from home, resulting in empty office buildings. Urban spaces and buildings are valuable assets to both public and private sectors, digitalising them, i.e. making information on assets available, and making booking/renting/temporarily using easy through digital platforms. Digitalising assets and making them to be used by the logistics sector would benefit cities and citizens, as well as the logistics sector.

Energy provision is a key for transition to electric vehicles. Data on energy provision provides information when is best timing to charging vehicles and best places to set up infrastructure. Such data can be used by the logistics sector or cities for setting up charging infrastructure and planning charging times.

Recommended actions:

Action R5.1: Create a data sharing format and mechanism to enable digitalise assets, e.g. empty buildings, car parks, curb-sides and to enable use of them via digital tools

A standard data format to describe such assets in the context of being used by the logistics sector, e.g. location, area, height, entrance, etc. Data sharing mechanisms may consider use

of Artificial Intelligence (AI), Virtual Reality (VR), and Digital Twins (DT) to enable fast evaluation and automatic demand-requirement matches. Asset owners, public or private sectors, can use such tools to attract users from the logistics sector and beyond to make all assets in a city useful.

Action R5.2: Carry out research into how to digitalise assets, energy provision and charging infrastructure owned by different stakeholders to understand their needs and business models

Digitalisation of assets, energy provision and charging infrastructure (including location, usage and operation) is challenging and an innovative task. It would need to be accompanied by tailored research projects to better understand user needs, create data standards and contracts, develop digital tools and associated business models.

Various stakeholders may have different needs and motivation. Research into their needs and motivations is needed to enable co-create of digitalisation tools.

Action R5.3: Setting up an enabling legal and regulatory framework for optimised use of assets in cities through digitalisation of assets

There may be regulations that prevent reuse of existing infrastructure or buildings for other use. Functionalities of a building are defined by regulations and converting them for logistics purpose may not be allowed. Digitalisation on assets should also review current practices and propose new frameworks to enable digitalisation of assets.

5. Summary of recommendations (toolkits)

Recommendations	Actions	By whom			
		EC	National ministry of member state	Local authority	Private sector
R1: Support communication and education on the importance of data sharing (e.g. how data sharing allows development of policies that benefit all)	Action R1.1: Local authorities (and other government bodies) to develop communication strategies to the private sector on data sharing		✓	✓	
	Action R1.2: Public authorities should ensure transparent and timely consultations with stakeholders regarding data sharing needs.				✓
	Action R1.3: Develop guidelines on communication strategies to help cities and disseminate best practices	✓	✓		
R2: Use of apps and existing IT tools for data sharing	Action R2.1: Local authorities (and other government bodies) to consider use of apps or existing IT tools for data sharing		✓	✓	
	Action R2.2: Initiate pilots with diverse types of stakeholders to co-create tools for data sharing		✓	✓	✓
	Action R2.3: Participate in pilots to co-create tools for data sharing			✓	✓

R3: Create an appropriate legal framework to enable reuse of available datasets	Action R3.1: Review current available datasets and address barriers to prevent use of such data		✓	✓	
	Action R3.2: Develop a common guideline on regulations and legal frameworks in the context of transport data collection and usage	✓	✓		
R4: Develop a dedicated approach to collect data on large volume of goods from private sector, e.g. construction materials and wastes, and business delivery etc.	Action R4.1: Create a data sharing mechanism to enable data from construction companies or businesses to be shared with public authorities, and with other users (e.g. travellers) on occupied urban spaces and disruptions to traffic		✓	✓	✓
	Action R4.2: Carry out research into how to manage large volume of goods include data sharing and collecting best practices	✓	✓	✓	✓
R5: Digitalise assets, energy provision and charging infrastructure that can be used by the logistics sector and share the information of assets, energy provision and charging infrastructure	Action R5.1: Create a data sharing format and mechanism to enable digitalise assets, e.g. empty buildings, car parks, curb-sides and to enable use of them via digital tools	✓	✓	✓	✓
	Action R5.2: Carry out research into how to digitalise assets, energy provision and charging infrastructure owned by different stakeholders to understand their needs and business models	✓	✓	✓	✓
	Action R5.3: Setting up an enabling legal and regulatory framework for optimised use of assets in cities through digitalisation of assets	✓	✓	✓	

Annex – Examples of data sharing in urban logistics

ZFE.green (France)

Various French cities have implemented low emission zones (Zones à Faibles Emissions mobilité or ZFE). All the cities share their information with the public through a single system, ZEF.Green. The system has a Green-Zone (low emission zone) app and map that shows all Green-Zone information in entire France. Use of the app can help business to plan delivery. This system can be deployed due to a unified approach of low emission zone across all French cities. The standard for vehicles allowed in these zones is based on the Crit'Air (or Air Quality Certificate) system, which categorizes vehicles according to their emissions. The Crit'Air system classifies vehicles into six categories based on their age, engine type, and emissions. The categories are represented by stickers that must be displayed on the vehicle's windshield:

- Crit'Air 0 (Green): Electric and hydrogen-powered vehicles.
- Crit'Air 1 (Purple): Recent petrol vehicles (Euro 5 and 6) and certain hybrid vehicles.
- Crit'Air 2 (Yellow): Petrol vehicles from Euro 4 and some older Euro 5, and diesel vehicles Euro 5.
- Crit'Air 3 (Orange): Petrol vehicles Euro 2 and 3, diesel vehicles Euro 4.
- Crit'Air 4 (Red): Diesel vehicles Euro 3.
- Crit'Air 5 (Grey): Diesel vehicles Euro 2.
- No Sticker: Older vehicles not meeting Euro 2 standards.

As of 2024, Paris restricts access to vehicles that are not Crit'Air 1, 2, or 3, effectively banning vehicles with Crit'Air 4, 5, and those without a sticker and These restrictions apply from 8 AM to 8 PM on weekdays. Stickers for different Crit'Air vehicles are shown below:

<table>
<tr><th colspan="3">DEUX-ROUES</th></tr>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td>Tous les véhicules
« zéro émission moteur » :
100 % électrique et hydrogène</td><td>EURO 4
À partir du 1er janvier 2017 pour les motocycles
1er janvier 2018 pour les cyclomoteurs</td><td>EURO 3
du 1er janvier 2007 au 31 décembre 2016 pour les motocycles
31 décembre 2017 pour les cyclomoteurs</td></tr>
<tr><td></td><td></td><td>48 % des deux-roues</td></tr>
<tr><td>  </td><td>  </td><td>  </td></tr>
<tr><td>EURO 2
du 1er juillet 2004
au 31 décembre 2006</td><td>Tout type
du 1er juin 2000 au 30 juin 2004</td><td>-</td></tr>
<tr><td>38 % des deux-roues</td><td>12 % des deux-roues</td><td></td></tr>
<tr><td colspan="3">Non classés : 1 % des deux-roues</td></tr>
</table>

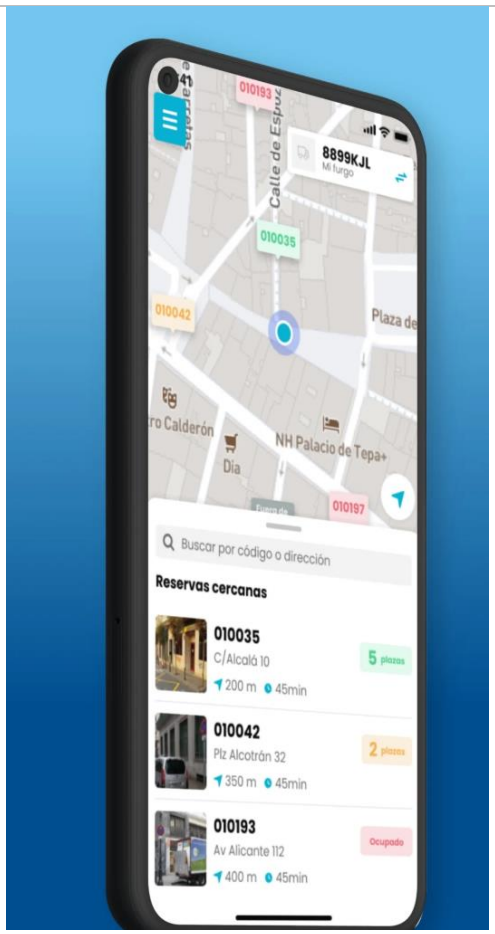
The unified approach makes data sharing and enforcement easy and reduce costs to cities.

DUM 360 (Madrid, Spain),

DUM 360 is a free mobile App for the regulation and control of parking in Urban Merchandise Distribution reserves, exclusively for vehicles of professionals authorized to carry out Loading and Unloading activities. Madrid has 2,660 loading and unloading zones with 8,219 spaces in total. The DUM 360 has been establised to collect information on the occupation of loading and unloading spaces. Before launch of the app, sensors to gain more insight into usage of loading spaces have been installed. Use of the app, a driver can know in advance availablility of loading space, to save time in circulating for find a loading space. It allows pre-book loading zones, and free use of the loading zones for up to 60 minutes. The App that creates significant benefits to drivers results receives immediate mass uptake. It has been approved as an efficient way to share data between the public and private sectors. Data collected through the app can be used to provide evidences on increasing the number of zones for the distribution of goods, extension of the hours for carrying out these operations and implementation of new traffic signals. Data collected through the app will also be used to set up micro-hubs through public and privae collaboration, and opening of new lockers for e-commerce.

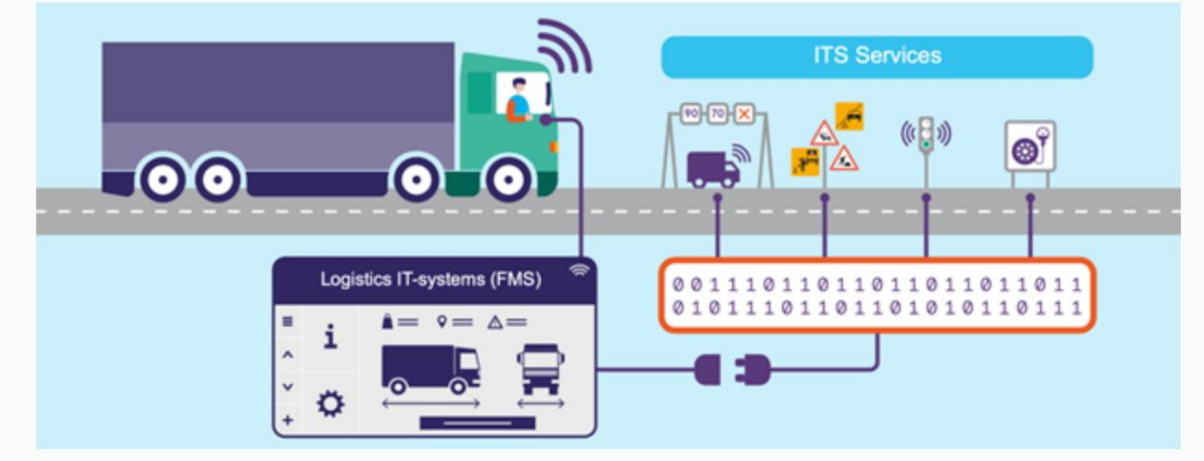
In association of the launch of the app, a DUM forum has been created to implement other measures resulting from dialogue between the private and private sector.

Road sign for a DUM delivery zone



DUM 360 App user interface

ITS-FMS interface



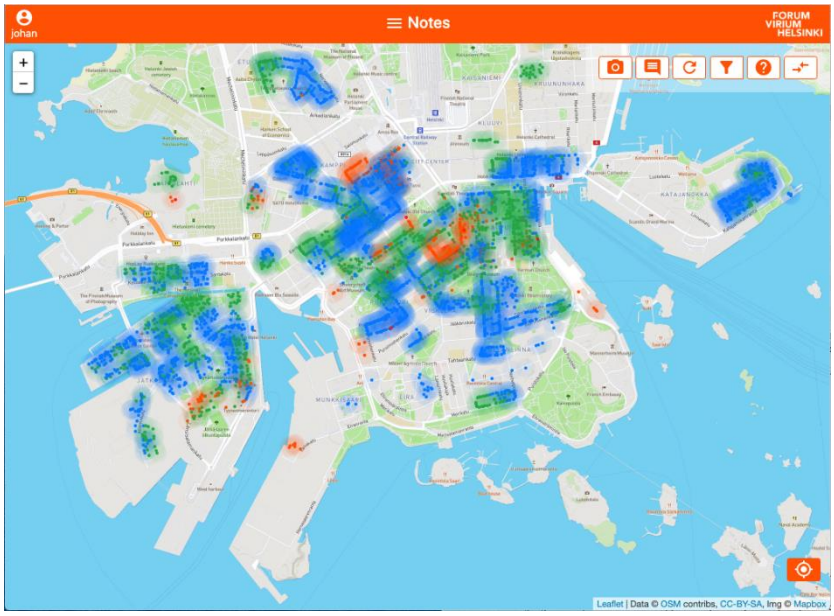
The ITS-FMS Interface is defined as an standard for communication between logistic IT-suppliers (FMS) wanting to integrate Intelligent Transport Systemsservices and ITS cloud service providers (CSP) that offer the required services. These services consist of usefull real time traffic and infrastucture events that are relevant on the current route of the truck.

It serves as an interface for communication about logistics and traffic. It has been developed with and already implementated by several marked companies with support of the dutch government. All certified cloud service providers that have access to the relevent data, have to provide their services following this standard. The main goal is to make implementation of these services easy as possible for all software suppliers in the logistics marked, to make the traffic flow more smooth, predictable and save for everyone. It is a national-wide system, allowing real-time data sharing between vehicles and traffic management systems.

Currently, on the Connected Transport Corridors, several of these ITS services are already provided in-truck via a mobile wireless data connection via stand-alone smartphone apps, which communicate the route and position of the truck directly to a cloud service provider. This ITS-FMS interface description is aimed at the same kind of information services, however, using the already deployed in-vehicle devices in the trucks that are managed by so called FMS, Fleets Management Systems. These in-vehicle devices may range from build-in on-board units to tablets or smartphones.

Open Logistics Map (OLMap) in Helsinki

The OLMap open source tool was developed in the New Solutions in City Logistics and Logistics Accessibility Data projects at Forum Virium Helsinki to support last mile delivery solutions in urban areas. The aim is to improve the logistics chain with the help of digitalisation. OLMap supports data collection and delivery instruction sharing about urban delivery destinations. The data collection features are intended for logistics professionals but open to anyone.



The OLMap data collection app allows creating data points on the map and associating it with an image, free text comments as well as structured data on features of interest to last miles logistics, such as entrances, gates, stairways and obstacles. It was designed for ease of use with a smartphone in the field as well as with a computer, supporting efficient export of documented features to OpenStreetMap via the online iD editor.

Freight and Logistics Observatory for Ile-de-France (OFELIF)

The Île-de-France region is a territory with challenges due to its geographical position, but also because of the catchment area it represents. More than 220 million tonnes of goods arrive, leave or circulate in Île-de-France each year, using road, river and rail. The State and the Île-de-France Region aim to develop a policy to improve the economic, social and environmental performance of freight and logistics in Île-de-France by strengthening knowledge in this sector with the creation of a freight and logistics observatory in the Île-de-France region with the support of the Paris Region Institute.

The observatory's mission is to benefit all stakeholders in the region by improving knowledge and understanding of the Ile-de-France freight and logistics ecosystem. It shares analytical elements covering:

- the transport of goods, all modes combined;
- land and real estate dedicated to logistics activities;
- environmental issues related to logistics activities;
- socio-economic issues.
-

Its mission is to:

- collect and share information, data, methodologies, studies and other work
- promote the pooling of resources between observation structures, discussions, and data production
- carry out active monitoring by facilitating the dissemination and presentation of published and future studies.

About the group and the document

The Subgroup 4 of Expert Group on Urban Mobility (EGUM) is dedicated to urban logistics. It is composed by twelve national ministries of EU member states, seven regional governments and city authorities, and ten associations/organizations. This Subgroup is coordinated by ALICE, POLIS and ACEA.

This Subgroup aims to developing a set of recommendations for taking actions to advance the implementation of the Urban Mobility Framework. This document has been jointly developed by the members of the Subgroup 4. The group believes that the recommended actions would ensure a better and improved quality of life in European cities, contribute to climate actions, sustain economic growth and enhance competitiveness of European business.

Inputs were collected from the members of the Subgroup 4 and EGUM plenary through online meetings, in-person meetings and workshops, online questionnaires, online discussion tools (e.g. using Miro board). Members of the Subgroup 4 have exchanged information on policy development, technology developments, market insights, common challenges, and current practices. Results, good practices, and lessons learned from past and ongoing EU funded research and innovation (R&I) projects and relevant Living Labs (LLs) have been taken into consideration.

List of organisations participating to the subgroup

Subgroup leaders
Alliance for Logistics Innovation through Collaboration in Europe, ALICE AISBL European Automobile Manufacturers Association, ACEA POLIS
Cities and Regions
Barcelona Metropolitan Area Bremen Ile-de-France Region Karditsa Stockholm The Hague Toulouse Métropole
Member States
Austria Belgium Czechia Finland France Italy Latvia Lithuania The Netherlands Poland Portugal Spain

Organisations
AVERE - The European Association For Electromobility Community of European Railway and Infrastructure Companies - CER aisbl Council of European Municipalities and Regions - CEMR Cycling industries Europe aisbl (CIE) European Cyclists Federation (ECF) European Transport Workers Federation - ETF-Europe Eurocities International Road Transport Union - IRU LEVA-EU MaaS Alliance
Observers
JRC – Joint Research Centre of the European Commission